

SKINNER LANDFILL WORK GROUP

June 10, 2001

Scott Hanson
EPA Project Coordinator
United States Environmental Protection Agency
Region V, C-14J
77 W. Jackson Blvd.
Chicago, IL 60604



**Subject: May 2001 Progress Report
Skinner Landfill
West Chester, Ohio**

This status report for May 2001 was prepared by the Skinner Landfill Group (SLG), as required by the Consent Decree entered by the United States District Court on April 2, 2001 for the Skinner Landfill in West Chester, Ohio.

May 2001 Construction Activities:

- Clearing and grubbing of site was completed.
- Completed topsoil stripping and stockpiling.
- Prepared working platform (bench) for use in construction of groundwater interceptor system (GIS).
- Relocated miscellaneous scrap metal from project area.
- Started placement of sub-grade fill on south side of landfill
- Health & Safety Meeting held on May 16, 2001 with ProTerra prior to commencing field work on installation of GIS.
- Waste at edge of landfill was adjusted to aid in construction of final cap.
- Construction of decontamination pad was completed.
- Approximately 245 feet of slurry wall has been installed by ProTerra.
- Initiated Tank & Drum Sampling Plan

Regulatory Submittals/Approvals

- Submitted revised Air Monitoring Plan on May 10, 2001. US EPA approved revised AMP on May 16, 2001.
- Received US EPA approval of construction schedule in a letter dated May 15, 2001.
- Submitted Tank & Drum Sampling Plan on May 3, 2001. US EPA approved plan on May 24, 2001.
- Submitted a request for a minor realignment of the Groundwater Interceptor System to USEPA on May 8, 2001. US EPA approved request in letter dated May 15, 2001.

Community Outreach Activities

On May 30, 2001 a meeting was held at the Earth Tech construction trailer. Attendees included West Chester Assistant Fire Chief Tony Goller, Scott Hanson - US EPA, Ben Baker - Skinner Landfill Technical Committee, and several representatives from Earth Tech. The purpose of this meeting was to review site activities and progress on the implementation of the final cover and groundwater collection system. Assistant Fire Chief Goller will update the West Chester Trustee and Township officials on the progress of

the work at the site and of any upcoming activities that have potential to impact the community. The Assistant Fire Chief visits the site several times throughout the week to keep informed on site activities. The only request made by West Chester Township at this meeting was to request a copy of the final report on the Tank & Drum Sampling results when completed. A copy will be provided to West Chester upon completion of the report. West Chester also requested that someone attend some of their meetings to update the Board periodically. Ben Baker agreed to be available periodically to provide the requested updates. However, some lead time will be needed due to schedule constraints.

Current Issues

- A new grading plan is being prepared to address an imbalance in available borrow material for sub-grade preparation. This plan will be submitted to US EPA for approval when complete.
- Ray Skinner has raised several complaints. They are being addressed as appropriately as we can.
- *Relocation of a large excavator owned by Ray Skinner will be required in order to relocate waste material from outside the landfill to within the landfill.*

Field Sampling Plan Activities

Three sampling events occurred during May.

- May 8, 2001 - Surface water run-off sampled
- May 17, 18, 2001 - Surface water sampled
- May 31, 2001 - Biological sampling was done

The results of the April 17, 2001 surface water sampling results have been received are currently undergoing validation.

Sampling planned within the next six weeks is:

- Surface water sampling scheduled for June 13, 2001
- Surface water run-off sampling if a rain event > 0.1 inch occurs and run-off occurs

Details on the implementation of the Field Sampling Plan can be found in Attachment 1.

Construction photo documentation of various site activities is on going. See Attachment 2 for selected photos showing various activities being conducted within this reporting period.

Weekly Construction Quality Assurance Reports can be found in Attachment 3.

Submittals Received

See Table 1 for a list of submittals received and approved by the Engineer.

See Attachment 4 for selected results of Construction Quality Assurance Testing Results for sub-grade placement and slurry trench installation. All CQA testing meet specifications.

Planned Activities:

Activities planned over the next six weeks include:

- Continue installation of slurry wall
- Commence installation interceptor trench
- Continue removal of general fill from various borrow area with the site
- Continue shaping of waste to receive general fill
- Continue placement of general fill and sub-grade grading
- Continue construction layout by surveyors
- Sampling per Field Sampling Plan schedule
- Project meeting scheduled for June 20, 2001.
- Receive and validate results of Tank & Drum sampling and initiate disposal of material.

If you have questions regarding the status of activities associated with the Site, please contact Ben Baker at (517) 636-0787

Sincerely,



Ben Baker, Chairman
Skinner Landfill Technical Committee
c/o The Dow Chemical Company
Ashman Center
9008 Bldg
4520 E. Ashman
Midland, MI 48674
(517) 636-0787

Attachments:

1. Field Sampling Plan Summary
2. Photo Documentation
3. Weekly CQA Reports
4. Selected Construction Quality Assurance Testing Results

cc Chuck Mellon, Ohio EPA
 Chuck Terwilliger, SLG Steering Committee
 Ron Roelker, Earth Tech
 Rick Warwick, Earth Tech

TABLE 1

SUBMITTAL NUMBER	DESCRIPTION OF SUBMITTAL
001	Earth Tech Certificate of Insurance
002	David Estes Engineering Certificate of Insurance
003	Batch Plant Specifications
004	Slurry Wall Work Plan
006	Soil Bentonite Mix Design Additional Information
007	Course Aggregate Gradation
009	Bentonite Source
010	<ul style="list-style-type: none"> • Product description of non-woven fabric • Certificate of Analysis for geotextile • Product Specifications Non-Woven Geotextile • Gradation of 411 stone
011	<ul style="list-style-type: none"> • CSP Riser • Cast in Place Concrete • Material Spec's for Re-Bar • Frame & Grate for Riser Pipe
012	<ul style="list-style-type: none"> • Silt Fence Specification • Design Data for Silt Fence • Erosion Control Specifications

Attachment 1

Field Sampling Plan Summary

**SKINNER LANDFILL REMEDIAL ACTION
FIELD SAMPLING PLAN
MONTHLY REPORT**

REPORTING PERIOD: April 29, 2001 through May 31, 2001

TEST CONDUCTED:

- ∞ Surface water, surface water run-off and biological sampling conducted (see table below)

TESTING TO BE CONDUCTED WITHIN THE NEXT SIX WEEKS:

- ∞ Surface water sampling (scheduled for 6/13/01)
- ∞ Surface water run-off sampling (if greater than 0.10" rainfall event and run-off present)

MEDIA	MONTH					
	April	May	June	July	August	September
soil						
surface water	4/17/01	5/17,18/01				
surface water run-off	NS	5/8/01				
groundwater						
biological		5/31/01				

NS – Not Sampled (no rainfall event of greater than 0.10")

SUMMARY OF ANALYTICAL RESULTS

The final laboratory analytical results of the April 17, 2001 surface water sampling results have been received, however, these results have not been validated yet.

Attachment 2
Photo Documentation

SKINNER LANDFILL SUPERFUND SITE
REMEDIAL ACTION

May 2001 Report



Photo 1. Top of landfill (south lobe looking north) after clearing and grubbing.



Photo 2. Placement of silt fence along south fence line.



Photo 3. Placement of subgrade fill adjacent to south side of landfill.

SKINNER LANDFILL SUPERFUND SITE
REMEDIAL ACTION

May 2001 Report



Photo 4. Topsoil stockpile #1 shown in foreground with South Borrow Area at right background.



Photo 5. Well cover for monitor well GW # 21. This well was not located during the well abandonment project. GW # 21 will be abandoned prior to cap grading activities.



Photo 6. Staging of drums for implementation of Drum and Tank Sampling Plan.



Photo 7. Construction of leader trench for slurry wall near Station 3+50.



Photo 8. Construction of slurry wall near Station 3+78.

Attachment 3
Weekly CQA Reports

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Monday, April 30, 2001

ATTENDEES: R. Roelker, J. Guenther

Current Construction Progress:

80% of clearing and grubbing completed. R. Skinner has removed 35 % of scrap metal from project area.

Planned Activities:

Continue clearing and grubbing and moving scrap metal. Begin preparation of working platform for groundwater interceptor system.

Current Issues:

Shallow rock encountered in test pits at the North borrow area (5 to 8 ft).
Possible topsoil shortage (poor grade topsoil at surface).
Two small seepage areas encountered on east side of landfill.
Working platform too close to creek edge between 5+00 and 7+00.

Issues Resolved:

Tunnel entrance backfilled and buried.

COA Activities:

Photo-documentation of Site Preparation activities per Section 6.0 of CQA plan.
Collect Proctor samples from south borrow area.

Design Issues:

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Monday, May 7, 2001

ATTENDEES: R. Roelker, J. Guenther, R. Warwick, B. Baker

Current Construction Progress:

90% of clearing and grubbing completed. R. Skinner has not removed any scrap metal last week. Topsoil stripping and stockpiling initiated. Survey layout continuing. Groundwater Interceptor System subcontractor ProTerra conducted site walkover on May 7, 2001.

Planned Activities:

Continue clearing and grubbing. Move scrap metal outside of construction area. Continue preparation of working platform for groundwater interceptor system. Continue topsoil stripping/stockpiling. Begin construction of first subgrade placement (sidehill fill at south slope of landfill).

Current Issues:

Sampling of on-site shallow water wells to be conducted to evaluate as non-potable water supply.

Issues Resolved:

CQA Activities:

Photo-documentation of Site Preparation activities per Section 6.0 of CQA plan.
Proctor results for South Borrow Area soils attached.
Collected Proctor samples from North Borrow Area (clay, brown weather shale, gray weathered shale).

Design Issues:

No new issues.

Other Items

Preparing request to USEPA for minor GIS realignment.
Earthwork balance calculations to be conducted by surveyor next week.
USEPA reviewing Drum/Tank Sampling Plan.
USEPA and Ohio EPA visited the Site on May 3, 2001. No issues reported.
Monica Stefanoff (RF Weston) visited the Site on May 4, 2001. No issues reported.

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Monday, May 14, 2001

ATTENDEES: R. Roelker, J. Guenther, A. Benson, P. Higgins, M. Brady

Current Construction Progress (work completed last week):

95% of clearing and grubbing completed. Removal of scrap metal from inside the fence completed. GIS platform 80% completed. Topsoil stripping and stockpiling continuing. Started placement of subbase grade general earth fill at south slope. Survey layout continuing.

Planned Activities (for this week):

Groundwater Interceptor System subcontractor ProTerra to attend health and safety kickoff meeting. Complete topsoil stripping/stockpiling. Complete preparation of working platform, including south diversion berm, for groundwater interceptor system. Continue construction of subgrade placement (sidehill fill at south slope of landfill). Begin drum and tank staging/sampling. Complete set up for slurry wall construction. Begin placement of subgrade on south side of the south lobe of landfill cap.

Current Issues:

Evaluating the relocation of the decon pad.
Cut/fill quantity clarification.

Issues Resolved:

On-site shallow water wells considered to be unsuitable for construction use.

COA Activities:

Photo-documentation of Site Preparation activities per Section 6.0 of CQA plan.
CQA subcontractor conducting compaction tests on subgrade. All tests pass.

Design Issues:

No new issues.

Other Items

Sent USEPA letter requesting minor GIS realignment.
Earthwork balance calculations to be conducted by surveyor this week.
USEPA reviewing Drum/Tank Sampling Plan.
Mike Brady will be the new on-site person from RF Weston.
Monthly surface water/runoff sampling to be conducted next week.

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Monday, May 21, 2001

ATTENDEES: R. Roelker, J. Guenther, A. Benson

Current Construction Progress (work completed last week):

Groundwater Interceptor System subcontractor ProTerra to attended health and safety kickoff meeting on Wed. May 16, 2001. Completed topsoil stripping/stockpiling. Completed GIS working platform, including south diversion berm. Continued construction of a small portion of subgrade placement at south slope of landfill. Completed set up of pug mill for slurry mixing, storage and pumping. Began placement of subgrade on south side of the south lobe of landfill cap. Stopped placement of subgrade pending cut/fill analysis.

Planned Activities (for this week):

Adjusting uncovered waste at landfill edges. Begin slurry wall construction.

Current Issues (cumulative):

Cut/fill quantity analysis.
Shallow rock at North Borrow Area.
Possible topsoil shortage.
Evaluating the relocation of the decon pad.
Ray Skinner indicated possible mustard gas containers buried at northwest corner of landfill.

Issues Resolved:

USEPA approved GIS realignment in letter dated May 15, 2001.

CQA Activities:

Photo-documentation of Site Preparation activities per Section 6.0 of CQA plan.
CQA subcontractor conducting compaction tests on subgrade. All tests pass.
Full time Resident Project Observer (RPO)(Aaron Benson) assigned to GIS CQA.

Design Issues (cumulative):

Fence realignment to allow through access to bridge and gate for west landfill entrance.
Upgrade creek erosion protection from stations 5+00 to 7+00.

No new issues.

Other Items

Monthly surface water/runoff sampling conducted on May 18, 2001.

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Monday, May 30, 2001

ATTENDEES: R. Roelker, J. Guenther, B. Baker, C. Ryan (ProTerra), R. Anschutz
(ProTerra), C. Moses, R. Warwick

Current Construction Progress (work completed last week):

Adjusting uncovered waste at landfill edges (2,800 Cys total). Decon pad completed. Completed lead-in trench for slurry wall construction.

Planned Activities (for this week):

Continue slurry wall construction. Make minor site drainage improvements.

Current Issues (cumulative):

Cut/fill quantity analysis.

Shallow rock at North Borrow Area.

Possible topsoil shortage. (to be measured in the field for estimate).

Ray Skinner indicated possible mustard gas containers buried at northwest corner of landfill.

Possible slurry wall construction on Saturdays.

Discolored water encountered at southeast corner of site (contained for testing).

Monitor well GW-21 located and needs to be abandoned.

Issues Resolved:

CQA Activities:

Full time Resident Project Observer (RPO)(Aaron Benson) assigned to GIS CQA.

Centerline of slurry trench resurveyed to establish existing grades and depth to bedrock.

Slurry/soil-bentonite CQA testing forms approved by Engineer.

Proctor results from North Borrow Area submitted to Earth Tech by lab.

Design Issues (cumulative):

Fence realignment to allow through access to bridge and gate for west landfill entrance.

Upgrade creek erosion protection from stations 5+00 to 7+00.

No new issues.

Other Items

Biological sampling to be conducted this week.

Drillers for well/piezometer and well abandonment construction to review site this week.

Monthly public meeting to be conducted this week.

Om Patel with Weston visited the site on May 24, 2001 and sent notes to USEPA.

Attachment 4

Selected Construction Quality Assurance Testing Results

LETTER OF SUBMITTAL

Submittal # 001

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: April 27, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
SUBJECT: Insurance Certificate	

WE ARE SENDING YOU:

- ☒ Attached
- ☐ Copy of letter ☐ Change order ☐ Under separate cover via the following items:
- ☐ Flow sheets ☐ P & ID ☐ Prints ☐ Specifications
- ☐ Shop drawings ☐ Plans ☒ Other ☐ Samples

Item Number	Number of Copies	Document Type	Description
1	1	Original	Earth Tech Certificate of Insurance

THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
- ☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
- ☒ As requested ☐ Returned for corrections ☐ Return corrected prints
- ☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
- ☐ FOR BIDS DUE

REMARKS: A copy of this certificate was sent to Ben Baker

COPIES TO:

SENT BY/SIGNED: Rick Warwick

Engineer's Approval:

RONALD F. ROELKER
4-30-01

CERTIFICATE NUMBER
 NYC-000937651-10

 PRODUCER
 Jessica Angilio c/o Marsh USA Inc.
 Risk Management Casualty Dept., 41st FL
 1166 Avenue of the Americas
 Tel: 212-345-3419 Fax: 212-345-5626
 New York, NY 10036-2774

 THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS
 NO RIGHTS UPON THE CERTIFICATE HOLDER OTHER THAN THOSE PROVIDED IN THE
 POLICY. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE
 AFFORDED BY THE POLICIES DESCRIBED HEREIN.

COMPANIES AFFORDING COVERAGE

COMPANY

A AMERICAN HOME ASSURANCE CO.

COMPANY

B WORKERS COMPENSATION, SEE ATTACHED SCHEDULE

COMPANY

C INDIAN HARBOR INSURANCE COMPANY

COMPANY

D

 INSURED
 EARTH TECH, INC.
 200 VINE STREET
 WILDER, KY 41076

 THIS IS TO CERTIFY THAT POLICIES OF INSURANCE DESCRIBED HEREIN HAVE BEEN ISSUED TO THE INSURED NAMED HEREIN FOR THE POLICY PERIOD INDICATED
 NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THE CERTIFICATE MAY BE ISSUED OR MAY
 PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, CONDITIONS AND EXCLUSIONS OF SUCH POLICIES. LIMITS SHOWN
 MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY	RMGL 6123620	07/01/00	10/01/01	GENERAL AGGREGATE \$ 5,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				PRODUCTS - COMPA/OP AGG \$ 5,000,000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				PERSONAL & ADV INJURY \$ 2,000,000
	<input type="checkbox"/> OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE \$ 2,000,000
	<input checked="" type="checkbox"/> XCU				FIRE DAMAGE (Any one fire) \$ 1,000,000
					MED EXP (Any one person) \$
A	AUTOMOBILE LIABILITY	RMCA 5347953 (A/S) RMCA 5347952 (TX)	07/01/00	10/01/01	COMBINED SINGLE LIMIT \$ 2,000,000
	<input checked="" type="checkbox"/> ANY AUTO				BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE \$
	<input checked="" type="checkbox"/> HIRED AUTOS				
	<input checked="" type="checkbox"/> NON-OWNED AUTOS				
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$
	<input type="checkbox"/> ANY AUTO				OTHER THAN AUTO ONLY \$
					EACH ACCIDENT \$
					AGGREGATE \$
	EXCESS LIABILITY				EACH OCCURRENCE \$
	<input type="checkbox"/> UMBRELLA FORM				AGGREGATE \$
	<input type="checkbox"/> OTHER THAN UMBRELLA FORM				\$
A B	WORKERS COMPENSATION AND EMPLOYER'S LIABILITY	SEE PAGE TWO SEE PAGE TWO	07/01/00 07/01/01	07/01/01 10/01/01	<input checked="" type="checkbox"/> WC STATU- TORY LIMITS <input type="checkbox"/> OTH- ER \$ 1,000,000
	<input type="checkbox"/> THE PROPRIETOR/ PARTNER/EXECUTIVE OFFICERS ARE <input type="checkbox"/> INCL. <input type="checkbox"/> EXCL.				EL EACH ACCIDENT \$ 1,000,000
					EL DISEASE-POLICY LIMIT \$ 1,000,000
					EL DISEASE-EACH EMPLOYEE \$ 1,000,000
C	OTHER CONSULTANTS	PEC0003688	07/01/00	07/01/02	AGGREGATE 1,000,000
	CONTRACTORS POLLUTION/ PROFESSIONAL LIAB.				PER CLAIM 1,000,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS (LIMITS MAY BE SUBJECT TO DEDUCTIBLES OR RETENTIONS)

 PROJECT: SKINNER LANDFILL PROJECT. SKINNER LANDFILL GROUP (SLSG) AND UNITED STATES, WHERE REQUIRED ARE NAMED AS AN
 ADDITIONAL INSURED ON THE GENERAL LIABILITY AND AUTOMOBILE LIABILITY POLICIES, BUT ONLY TO THE EXTENT OF NEGLIGENCE OF
 EARTH TECH, INC..

 SKINNER LANDFILL GROUP (SLSG)
 BEN BAKER-DOW CHEM CO
 ASHMAN CENTER 9008 BLDG
 4520 E ASHMAN
 MIDLAND, MI 48674

 SHOULD ANY OF THE POLICIES DESCRIBED HEREIN BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF,
 THE INSURER AFFORDING COVERAGE WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE
 CERTIFICATE HOLDER NAMED HEREIN, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR
 LIABILITY OF ANY KIND UPON THE INSURER AFFORDING COVERAGE, ITS AGENTS OR REPRESENTATIVES.

MARSH USA INC.

BY: Katherine S. O'Leary

Katherine S. O'Leary

DATE (MM/DD/YY)

04/27/01

PRODUCER	COMPANIES AFFORDING COVERAGE
Jessica Angiullo d/o Marsh USA Inc. Risk Management Casualty Dept., 41st FL 1166 Avenue of the Americas Tel: 212-345-3419 Fax: 212-345-5828 New York, NY 10036-2774 58880 -00/01-EWLD-00/01	COMPANY E
	COMPANY F
INSURED EARTH TECH, INC. 200 VINE STREET WILDER, KY 41076	COMPANY G
	COMPANY H

WORKER'S COMPENSATION COVERAGE

7/1/00 - 7/1/01

INSURANCE POLICY

(A) AMERICAN HOME ASSURANCE CO
RMWC 5275025(B) NATIONAL UNION FIRE INSURANCE CO.
RMWC 5275026(B) INS. CO. STATE OF PA
RMWC 5275027(B) ILLINOIS NATIONAL INS. CO.
RMWC 5275028(B) ILLINOIS NATIONAL INS. CO.
RMWC 5275029(B) AI SOUTH INSURANCE CO.
RMWC 5275030(A) AMERICAN HOME ASSURANCE CO.
RMWC 5275031

STATE

CA

NV, OR

AR, FL, MA, TN, VA

IL, LA

NY, WI

GA

ALL OTHER STATES

7/1/01 - 10/1/01

INSURANCE POLICY

RMWC 5275071

RMWC 5275072

RMWC 5275073

RMWC 5275074

RMWC 5275075

RMWC 5275076

RMWC 5275077

SKINNER LANDFILL GROUP (SLSG)
 BEN BAKER-DOW CHEM CO
 ASHMAN CENTER 9008 BLDG
 4520 E ASHMAN
 MIDLAND, MI 48674

LETTER OF SUBMITTAL

Submittal # 002

EARTH TECH
A DUKACOR INTERNATIONAL LTD. COMPANY

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: May 7, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.:	
SUBJECT: Sub Contractor Insurance Certificate	

WE ARE SENDING YOU:

- ☒ Attached ☐ Under separate cover via the following items:
- ☒ Copy of letter ☐ Change order ☐ Prints ☐ Specifications
- ☐ Flow sheets ☐ P & ID ☐ Samples
- ☐ Shop drawings ☐ Plans ☒ Other

Item Number	Number of Copies	Document Type	Description
1	1	Original	David Estes Engineering Certificate of Insurance

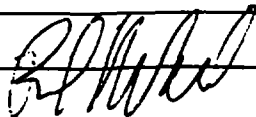
THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
- ☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
- ☒ As requested ☐ Returned for corrections ☐ Return corrected prints
- ☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
- ☐ FOR BIDS DUE

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick



Engineer's Approval:

RONALD F. ROELKER

5-8-01

ACORD. CERTIFICATE OF LIABILITY INSURANCE		OP ID SR ESTES-1	DATE (MM/DD/YY) 04/30/01
PRODUCER Crawford Insurance 179 Fairfield Ave PO BOX 73125 Bellevue KY 41073-1025 Phone: 859-581-2088 Fax: 859-581-1008		THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
INSURED David E. Estes Engineering, Inc 7075 Industrial Road Florence KY 41042		INSURERS AFFORDING COVERAGE	
		INSURER A Cincinnati Insurance Co.	
		INSURER B Midwestern Insurance Alliance	
		INSURER C	
		INSURER D	
		INSURER E	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY	CPP0679984	07/01/00	07/01/01	EACH OCCURRENCE \$ 500,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				FIRE DAMAGE (Any one fire) \$ 50,000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				MED EXP (Any one person) \$ 5,000
	GENERAL AGGREGATE LIMIT APPLIES PER				PERSONAL & ADV INJURY \$ 500,000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC				GENERAL AGGREGATE \$ Unlimited
					PRODUCTS - COMP/OP AGG \$ 500,000
A	AUTOMOBILE LIABILITY	CPP0679984	07/01/00	07/01/01	COMBINED SINGLE LIMIT (Ea accident) \$ 500,000
	<input checked="" type="checkbox"/> ANY AUTO				BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per accident) \$
	<input checked="" type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS				
	<input checked="" type="checkbox"/> NON-OWNED AUTOS				
	<input checked="" type="checkbox"/> \$500 COMP DED				
	<input checked="" type="checkbox"/> \$500 COLL DED				
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$
	<input type="checkbox"/> ANY AUTO				OTHER THAN EA ACC \$
					AUTO ONLY: AGG \$
A	EXCESS LIABILITY	CCC4419054	07/01/00	07/01/01	EACH OCCURRENCE \$ 10,000,000
	<input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE				AGGREGATE \$ 10,000,000
	DEDUCTIBLE				\$
	<input checked="" type="checkbox"/> RETENTION \$ 0				\$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	MW990117016C	07/01/00	07/01/01	WC STATUTORY LIMITS OTHER \$
	E.L. EACH ACCIDENT \$ 500,000				
	E.L. DISEASE - EA EMPLOYEE \$ 500,000				
	E.L. DISEASE - POLICY LIMIT \$ 500,000				
	OTHER				

DESCRIPTION OF OPERATIONS/LOCATION/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

EARTH TECH INC, USEPA, AND SKINNER LANDFILL ARE NAMED AS ADDITIONAL INSURED REGARDING LAND SURVEYING AT SKINNER LANDFILL, 8750 CINCINNATI-DAYTON ROAD, WEST CHESTER OH, 45069. COVERAGE IS PRIMARY AND WAIVER OF SUBROGATION APPLIES AS RESPECTS TO THIS PROJECT ONLY.

CERTIFICATE HOLDER EARTH TECH INC ATTENTION: RICK WARWICK 200 VINE STREET WILDER KY 41076	ADDITIONAL INSURED: INSURER LETTER: EARTH-1	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 14 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES. <i>Jean E. Crawford</i>
--	---	---

LETTER OF SUBMITTAL

Submittal # 003

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: May 7, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.: 02395 Page No.: 2 Paragraph No.: 1.06	
SUBJECT: Slurry Trench Cutoff Wall	

WE ARE SENDING YOU:

- ☒ Attached ☐ Under separate cover via the following items:
- | | | | |
|---|---------------------------------------|---|---|
| <input type="checkbox"/> Copy of letter | <input type="checkbox"/> Change order | <input type="checkbox"/> Prints | <input type="checkbox"/> Specifications |
| <input type="checkbox"/> Flow sheets | <input type="checkbox"/> P & ID | <input type="checkbox"/> Samples | |
| <input type="checkbox"/> Shop drawings | <input type="checkbox"/> Plans | <input checked="" type="checkbox"/> Other | |

Item Number	Number of Copies	Document Type	Description
1	4	Original	Batch Plant Specifications

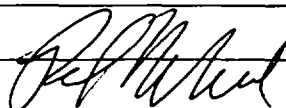
THESE ARE TRANSMITTED as checked below:

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> For approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> Resubmit copies for approval |
| <input type="checkbox"/> For your use | <input type="checkbox"/> Approved as noted | <input type="checkbox"/> Resubmit copies for distribution |
| <input checked="" type="checkbox"/> As requested | <input type="checkbox"/> Returned for corrections | <input type="checkbox"/> Return corrected prints |
| <input type="checkbox"/> For review & comment | <input type="checkbox"/> Other: _____ | <input type="checkbox"/> Prints Returned After Loan To Us |
| <input type="checkbox"/> FOR BIDS DUE | | |

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick



Engineer's Approval:

RONALD F. ROELKER

5-13-01

SKINNER LANDFILL CLOSURE Submittal Form

CONTRACTOR'S Name: Pro-Terra Environmental

Date: 5/7/01

-----Reference-----

Item: BATCH PLANT SPECIFICATIONS

Specification: SLURRY TRENCH CUTOFF WALL

Section : 02395

Page No.: 2

Para. No.: 1.06

Drawing No.: _____ of _____

Location: _____

Variation: _____

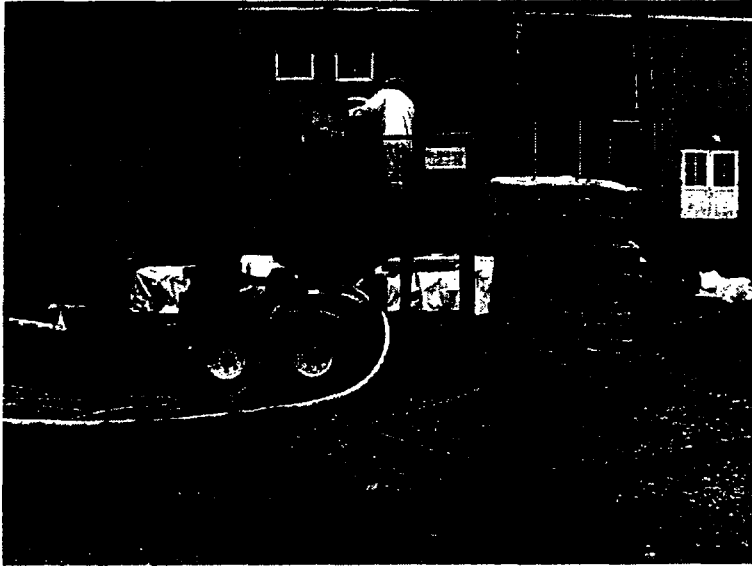
Submittal No.: 02395-01

Approved by: M. J. C. [Signature]

Specification Section 02395
Soil Bentonite Slurry Trench Cutoff Wall

SLURRY BATCH PLANT SPECIFICATIONS

The slurry wall batch plant is a self-contained Porta-Plant as manufactured by Geo-Solutions Inc. A picture follows:



This unit can be placed in any convenient location. Water will come from either a public hydrant with meter or a well located south of the work area. The slurry will be discharged via 4 inch hose to the trench. Bentonite will be delivered in paper bags on pallets and loaded by hand into the mixer.

LETTER OF SUBMITTAL

Submittal # 004 REVISED

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

May 14

DATE: May 7 , 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.: 02395 Page No.: 7 Paragraph No.: 3.04 C	
SUBJECT: Slurry Wall Work Plan	

WE ARE SENDING YOU:

- ☒ **Attached**
- ☐ Copy of letter ☐ Change order ☐ Under separate cover via the following items:
- ☐ Flow sheets ☐ P & ID ☐ Prints ☐ Specifications
- ☐ Shop drawings ☐ Plans ☒ Other ☐ Samples

Item Number	Number of Copies	Document Type	Description
1	6	Original	Slurry Wall Work Plan

THESE ARE TRANSMITTED as checked below:

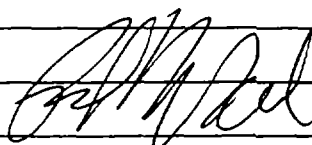
- ☐ For approval ☐ Approved as submitted ☒ Resubmit copies for approval
- ☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
- ☐ As requested ☐ Returned for corrections ☐ Return corrected prints
- ☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
- ☐ FOR BIDS DUE

REMARKS:

THIS IS A RESUBMITTAL WITH THE REVISIONS YOU REQUESTED.

COPIES TO:

SENT BY/SIGNED: Rick Warwick



Engineer's Approval:

RONALD F. ROELKER
5-15-01

PRO-TERRA

ENVIRONMENTAL CONTRACTING COMPANY

2000 Integrity Drive South, Columbus, Ohio 43209 * (614) 443-3737 * Fax (614) 443-4199

FAX TRANSMISSION COVER SHEET

DATE:

5/14/01

TO:

RICK WARWICK

COMPANY:

FAX#:

858-442-2306

REFERENCE:

SKINNER LANDFILL

FROM:

MIKE CIAMMAICHELLA

PT JOB#:

OF PAGES INCLUDING COVER:

10

Hard copy to follow by mail?

NO

COMMENTS:

SOIL BENTONITE WORK PLAN - RESUBMIT

PLEASE MAKE ADDL COPIES -

THANKS -

MIKE C.

NOTE TO RECIPIENT:

IMPORTANT: Please forward documents to addressee immediately upon receipt. If this transmittal is incomplete or illegible, or if you have any questions concerning received documents, please call 614-443-3737.

SKINNER LANDFILL CLOSURE Submittal Form

CONTRACTOR'S Name: Pro-Terra Environmental
Date: 5/14/01
Reference
Item: WORK PLAN

Specification: SOIL-BENTONITE SLURRY TRENCH
Section : 02395
Page No.: 7
Para. No.: 3.04.C
Drawing No.: _____ of _____
Location: _____
Variation: _____

Submittal No.: 02395-02A
Approved by: M. J. C. [Signature]

**Specification Section 02395
Soil Bentonite Slurry Trench Cutoff Wall**

SLURRY WALL WORK PLAN

- A. This section is not intended to replace the Project Specifications, but merely to supplement and augment as necessary for clarification. Therefore, we will not repeat all the Specification Sections.

The work platform will be constructed by EarthTech prior to our start of work. The mixing area will be adjacent to the trench for it's entire length.

- B. The slurry wall will be constructed first, starting upstream and working back to the entrance gate. Once it has been backfilled and the area cleaned up, the BP drain will be constructed.

Excavation of the trench will be accomplished with an extended stick Komatsu PC-400 equipped with a 24 inch wide bucket and rock ripper teeth (Hensley Tiger Teeth or equivalent). Spoils will be placed along side the trench and be used for backfill. Excavation will continue to the rock and a minimum of 2-3 feet into rock or until refusal of the excavating equipment. As the excavations are started, slurry will be added to the trench and it will be maintained at a level within 2 feet of the surface at all times. Slurry mixing will be accomplished with the plant described in the Batch Plant submittal. The plant will be set up west of the trench and slurry will be piped into the trench via a 4 inch hose.

Backfill for the slurry trench will consist of trench spoils and bentonite and will be mixed along side the slurry wall and then placed into the trench. Both mixing and backfilling operations will be accomplished by a smaller excavator which will also be able to get any dry bentonite and wet slurry mixed into the blend as required. The proportions of materials will be as determined in the mix design program. If dry bentonite is needed, it will be set out in bags at appropriate spacings for the depth of the trench, and then added as the backfilling operation gets to that part of the trench. Note, there is a specification error on the backfill gradation. We will work with material that has 95-100% passing the 3 inch sieve.

Backfill in the slurry trench will start in a so-called starter trenches, angled trenches dug beyond the contract trench alignment. Backfilling will continue until the trench is full of the specified materials.

Once the slurry wall is backfilled, the clay cap will be placed and the wall is complete.

- C. Material and equipment storage will occur outside and to the west of the work area. There is sufficient area available for the slurry batch plant and materials. Heavy equipment, such as Hydraulic excavators and loaders may be stored within the work

**Specification Section 02395
Soil Bentonite Slurry Trench Cutoff Wall**

SLURRY WALL WORK PLAN

limits between shifts. Should heavy equipment not be used for extended periods of time, it will be stored in the area to the west of the work area.

- D. The water-bentonite mixture compatibility test will be submitted according to Specification 02395-1.06.B.
- E. Water supply for the mixing of bentonite slurry will be from either a public hydrant with meter or a well located south of the work area. A temporary pipe will be installed in order to convey water from its source to the slurry plant.
- F. Drainage on this site will be managed by installing temporary ditches or dikes in order to keep surface flows from entering the work area. Water originating from this site will be contained by a soil berm which will be constructed between the trenches and the creek.
- G. Quality Control: We have attached a proposed set of QC forms for the project. These forms contain blanks for all the required sampling data and serve as a guide to the field personnel as to testing frequencies. We have followed the requirements of the slurry wall specification with the exception of the gradations. We have reduced the frequency of this test to a more normal once per 500 cy of backfill. We have also changed the sampling method for the SB backfill. With this type of material, Shelby tubes will just tear up the sample. Standard practice is to take a bag sample at the time of placement and then to reconstitute that sample in a mold back in the laboratory.
- H. Excess excavated material will be temporarily stockpiled up gradient from the trenches to be allowed to drain and subsequently handled as soil. Excess bentonite slurry will be spread out on the ground and allowed to dry for ease of handling. When able to be handled, the excess material can be loaded and hauled into the landfill for incorporation into the work.

GEO-SOLUTIONS INC.

PROJECT NAME:

PROJECT LOCATION:

FRESH SLURRY

DAILY QC RESULTS

DATE:

INSPECTOR: _____

FRESH SLURRY:

VISCOSITY (4 TIME PER SHIFT) MINIMUM 40 SECONDS

TIME:

RESULT:

SECONDS

SECONDS

DENSITY: (2 TIME PER SHIFT) MINIMUM 64 PCF

TIME:

RESULT:

PCF

FILTRATE LOSS (Once per Trenchlog) <50 CC IN 30 MINUTES

TIME:
DATE:

RESULT:

CC

CC

Number of bags bentonite mixed this date for slurry

--

COMMENTS:

SIGNED: _____

Contractor's QC Supervisor

SIGNED: _____

Owner's Representative

GEO-SOLUTIONS INC.

PROJECT NAME:
PROJECT LOCATION:

S-B BACKFILL

DAILY QC RESULTS

DATE:

INSPECTOR: _____

SLUMP: (3-6 in)

(1 per shift)

STATION

TIME

RESULT:

 INCHES

SAMPLING: PERMEABILITY - GRADATION

GRANULE: (>10% fines)

(Once per 100 cy)

Time:

Station:

Station:

 %

PERMEABILITY

(Once per 100 ft)

Time:

Station:

Station:

NOTES

COMMENTS:

BAGS OF BENTONITE MIXED AND PLACED

--

SIGNED:

Contractor's QC Supervisor

SIGNED:

Owner's Representative

GEO-SOLUTIONS INC.

PROJECT NAME:

PROJECT LOCATION:

TRENCH SLURRY

DAILY QC RESULTS

DATE:

INSPECTOR:

TRENCH SLURRY:

VISCOSITY (2 TIMES PER SHIFT) MINIMUM 40 SECONDS

FIRST SAMPLING

SECOND SAMPLING

TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> SEC.	TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> SEC.
SAMPLE DEPTH: <input type="text"/>			SAMPLE DEPTH: <input type="text"/>		
TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> SEC.	TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> SEC.
SAMPLE DEPTH: <input type="text"/>			SAMPLE DEPTH: <input type="text"/>		
TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> SEC.	TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> SEC.
SAMPLE DEPTH: <input type="text"/>			SAMPLE DEPTH: <input type="text"/>		

DENSITY (2 TIMES PER SHIFT) 64 TO 84 PCF

FIRST SAMPLING

SECOND SAMPLING

TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> PCF	TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> PCF
SAMPLE DEPTH: <input type="text"/>			SAMPLE DEPTH: <input type="text"/>		
TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> PCF	TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> PCF
SAMPLE DEPTH: <input type="text"/>			SAMPLE DEPTH: <input type="text"/>		
TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> PCF	TIME: <input type="text"/>	STATION <input type="text"/>	RESULT: <input type="text"/> PCF
SAMPLE DEPTH: <input type="text"/>			SAMPLE DEPTH: <input type="text"/>		

SIGNED: _____

Contractor's QC Supervisor

SIGNED: _____

Owner's Representative

Exc. Report

PROJECT NAME:

PROJECT LOCATION:

SLURRY EXCAVATION

SLURRY TRENCH

DAILY QC RESULTS

DATE: _____

INSPECTOR: _____

Geo-Solutions

WIDTH: _____

DATE	STATION	FINAL RECORD DEPTH FROM PLATFORM FT	PANEL LENGTH FT	PANEL AREA EXCAVATED SF	SHIFT NO.	DAILY SF	AVG. SF PER DAY	SF EXCAVATED TO DATE
11-1-68	100	1.0	10.0	100.0	1	100.0	100.0	100.0
11-2-68	100	1.0	10.0	100.0	1	100.0	100.0	200.0
11-3-68	100	1.0	10.0	100.0	1	100.0	100.0	300.0
11-4-68	100	1.0	10.0	100.0	1	100.0	100.0	400.0
11-5-68	100	1.0	10.0	100.0	1	100.0	100.0	500.0
11-6-68	100	1.0	10.0	100.0	1	100.0	100.0	600.0
11-7-68	100	1.0	10.0	100.0	1	100.0	100.0	700.0
11-8-68	100	1.0	10.0	100.0	1	100.0	100.0	800.0
11-9-68	100	1.0	10.0	100.0	1	100.0	100.0	900.0
11-10-68	100	1.0	10.0	100.0	1	100.0	100.0	1000.0
11-11-68	100	1.0	10.0	100.0	1	100.0	100.0	1100.0
11-12-68	100	1.0	10.0	100.0	1	100.0	100.0	1200.0
11-13-68	100	1.0	10.0	100.0	1	100.0	100.0	1300.0
11-14-68	100	1.0	10.0	100.0	1	100.0	100.0	1400.0
11-15-68	100	1.0	10.0	100.0	1	100.0	100.0	1500.0
11-16-68	100	1.0	10.0	100.0	1	100.0	100.0	1600.0
11-17-68	100	1.0	10.0	100.0	1	100.0	100.0	1700.0
11-18-68	100	1.0	10.0	100.0	1	100.0	100.0	1800.0
11-19-68	100	1.0	10.0	100.0	1	100.0	100.0	1900.0
11-20-68	100	1.0	10.0	100.0	1	100.0	100.0	2000.0
11-21-68	100	1.0	10.0	100.0	1	100.0	100.0	2100.0
11-22-68	100	1.0	10.0	100.0	1	100.0	100.0	2200.0
11-23-68	100	1.0	10.0	100.0	1	100.0	100.0	2300.0
11-24-68	100	1.0	10.0	100.0	1	100.0	100.0	2400.0
11-25-68	100	1.0	10.0	100.0	1	100.0	100.0	2500.0
11-26-68	100	1.0	10.0	100.0	1	100.0	100.0	2600.0
11-27-68	100	1.0	10.0	100.0	1	100.0	100.0	2700.0
11-28-68	100	1.0	10.0	100.0	1	100.0	100.0	2800.0
11-29-68	100	1.0	10.0	100.0	1	100.0	100.0	2900.0
11-30-68	100	1.0	10.0	100.0	1	100.0	100.0	3000.0
12-1-68	100	1.0	10.0	100.0	1	100.0	100.0	3100.0
12-2-68	100	1.0	10.0	100.0	1	100.0	100.0	3200.0
12-3-68	100	1.0	10.0	100.0	1	100.0	100.0	3300.0
12-4-68	100	1.0	10.0	100.0	1	100.0	100.0	3400.0
12-5-68	100	1.0	10.0	100.0	1	100.0	100.0	3500.0
12-6-68	100	1.0	10.0	100.0	1	100.0	100.0	3600.0
12-7-68	100	1.0	10.0	100.0	1	100.0	100.0	3700.0
12-8-68	100	1.0	10.0	100.0	1	100.0	100.0	3800.0
12-9-68	100	1.0	10.0	100.0	1	100.0	100.0	3900.0
12-10-68	100	1.0						

[illegible]

COMMENTS:

Exc. Report

SIGNED: _____

Contractor's QC Supervisor

SIGNED: _____

Owner's Representative

LETTER OF SUBMITTAL

Submittal # 006 REVISED

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: May 21, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.:02395 - 03 A	
SUBJECT: Soil Bentonite Mix Design	

WE ARE SENDING YOU:

- ☒ **Attached**
- ☐ Copy of letter ☐ Change order ☐ Under separate cover via the following items:
☐ Prints ☐ Specifications
☐ Flow sheets ☐ P & ID ☐ Samples
☐ Shop drawings ☐ Plans ☒ Other

Item Number	Number of Copies	Document Type	Description
1	2	Original	Soil Bentonite Mix Design Additional Information

THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
☒ As requested ☐ Returned for corrections ☐ Return corrected prints
☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
☐ FOR BIDS DUE

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick



Engineer's Approval:

RONALD F. ROELKER
5-22-01

SKINNER LANDFILL CLOSURE

Submittal Form

CONTRACTOR'S Name: Pro-Terra Environmental

Date: 5/16/01

Reference

Item: SOIL-BENTONITE SLURRY
MIX DESIGN
~ COMPLETE INFORMATION ~

Specification: SOIL-BENTONITE SLURRY TRENCH

Section : 02395

Page No.: 2

Para. No.: 1.06.A

Drawing No.: _____ of _____

Location: _____

Variation: _____

Submittal No.: 02395-03A

Approved by: M. J. C. [Signature]

Geo-Solutions Inc

Practical Solutions for Soil and Groundwater Construction Problems

201 Penn Center Blvd Suite 401
Pittsburgh PA 15235-5407

Phone: 412-825-5164

Fax: 412-825-5127

E-Mail: cryan@geo-solutions.com

Tuesday, May 15, 2001

FAX
8/12/01

Pro-Terra
2000 Integrity Drive South
Columbus, OH 43209

P-191

ATTN: Mike Ciannaichella
General Manager

Dear Mike:

Here is a fax of the final GAI report. It has all the additional data requested by the specs, although none of it is too relevant, since there are no specified parameters. I will send a clean copy as soon as I receive it. Nothing in this report changes our conclusions as expressed in our letter last week as to our proposed design mix.

I have also enclosed certification related to the first load of bentonite received on site.

Any questions, please call.

Sincerely,

Geo-Solutions Inc.



Christopher R. Ryan
President

cc: ad



GAI Consultants, Inc.

May 15, 2001
Project 2001-109-13
Geo Solution Purchase Order Number P-191

570 Barry Road
Monroeville, PA 15146-1300
Phone: 412/856-4600
FAX 412/856-4970

Mr. Christopher R. Ryan
Geo-Solutions, Inc.
201 Penn Center Boulevard
Pittsburgh, Pennsylvania 15235

Final Laboratory Hydraulic Conductivity Results
Slurry Wall Backfill Design for
Skinner Landfill Cincinnati, Ohio

Dear Mr. Ryan:

The final laboratory hydraulic conductivity test reports are attached. The hydraulic conductivity testing was performed in accordance with ASTM D 5084, "Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter," and are summarized below:

Specimen	Percent Bentonite %	Moisture Content Before Test %	Dry Density Before Test pcf	Hydraulic Conductivity cm/sec
1	0.5	20.2	107.8	2.6×10^{-9}
2	1.0	19.9	107.3	3.0×10^{-9}
3	1.5	19.7	105.4	2.4×10^{-9}
4	2.0	20.5	108.8	1.5×10^{-9}

The soil and water samples were received on April 25, 2001. The soil had an as received moisture of 13.8% and 44-47% passing the number 200 sieve. The bentonite used in the design testing was Wyo-Ben Hydrogel 90. Bentonite concentration was accomplished via the addition of a 5% bentonite slurry, with the exception of Specimen Number 4. Specimen Number 4 was batched to reflect a 2% bentonite concentration. One percent was added via slurry and the second percent was a dry addition. Adding 2% via slurry alone failed the slump requirements.

We appreciate the opportunity to be of service to Geo-Solutions, Inc. I will call in a few days to answer any questions you may have concerning the data presented.

Sincerely,
GAI Consultants, Inc.

Dennis J. Nablalo
Senior Laboratory Technician

DJN:ilo
c:\data\weng\geosolutions\final\200110913.wpd

Enclosures

Pittsburgh, PA Charleston, WV Philadelphia, PA Ft. Wayne, IN Valparaiso, Chile
Orlando, FL Bayside, NC Jacksonville, FL Richmond, VA

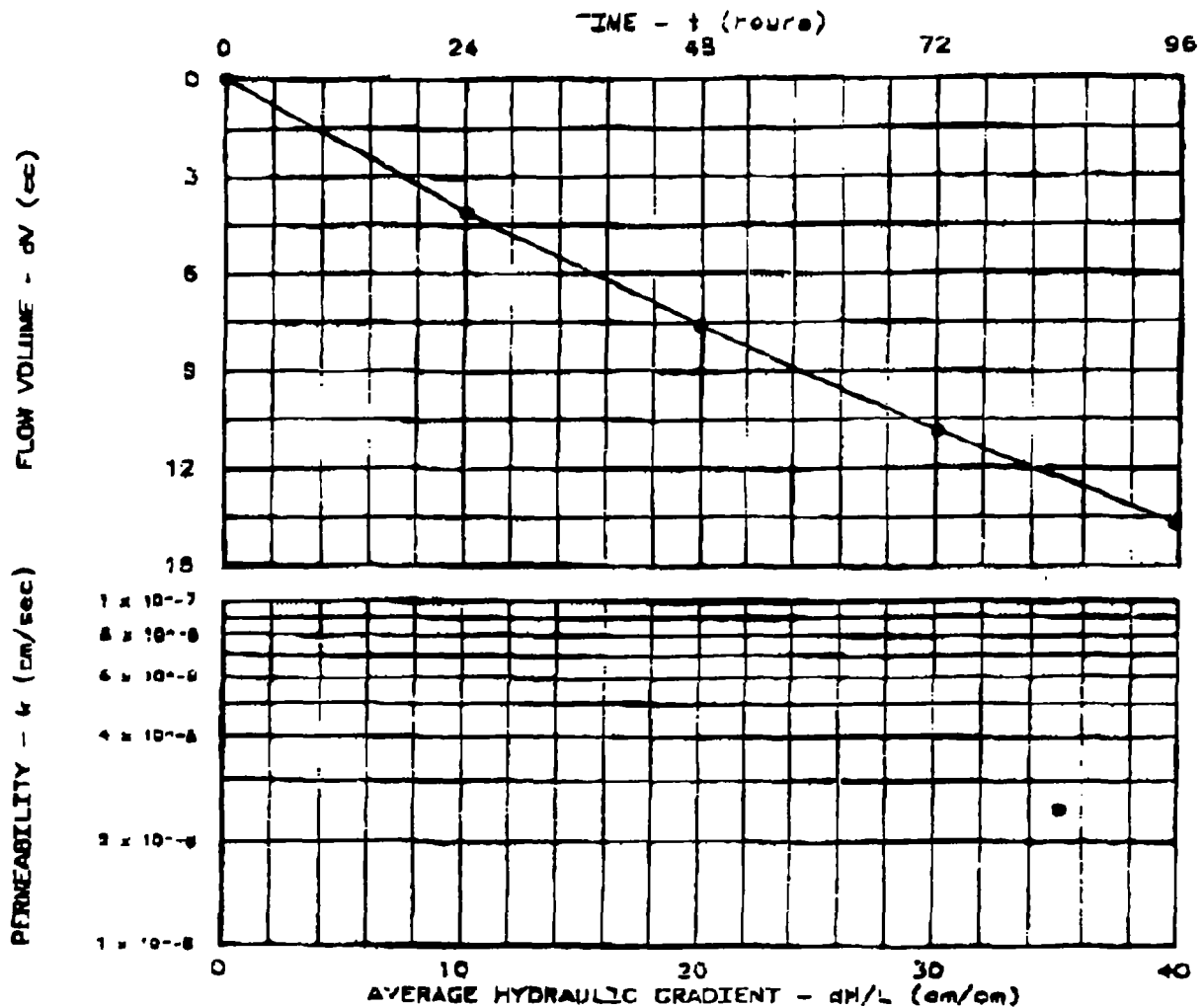
PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 4.38
 Specimen Diameter (cm): 7.06
 Dry Unit Weight (pcf): 107.8
 Moisture Before Test (%): 20.2
 Moisture After Test (%): 19.1
 Run Number: 1 & 2 &
 Cell Pressure (psi): 50.0
 Test Pressure (psi): 38.0
 Back Pressure (psi): 35.8
 Diff. Head (psi): 2.2
 Flow Rate (cc/sec): 3.73×10^{-4}
 Perm. (cm/sec): 2.48×10^{-8}

SAMPLE DATA:

Sample Identification: 0.5% Bentonite via slurry
 Visual Description: Soil-Bentonite
 Remarks: Initial B : 72%
 Final B : 90%
 Maximum Dry Density (pcf):
 Optimum Moisture Content (%):
 Percent Compaction:
 Permeameter type: Flex wall
 Sample type: Remold



Project: Geo-Solutions
 Location: Skinner Landfill
 Date: 05/02/01

Project No.: 01-109-13
 File No.: 937
 Lab No.: Test run 1
 Tested by: DFG
 Checked by: DJM
 Test: CH - Constant head

PERMEABILITY TEST REPORT
GAI Consultants, Inc.

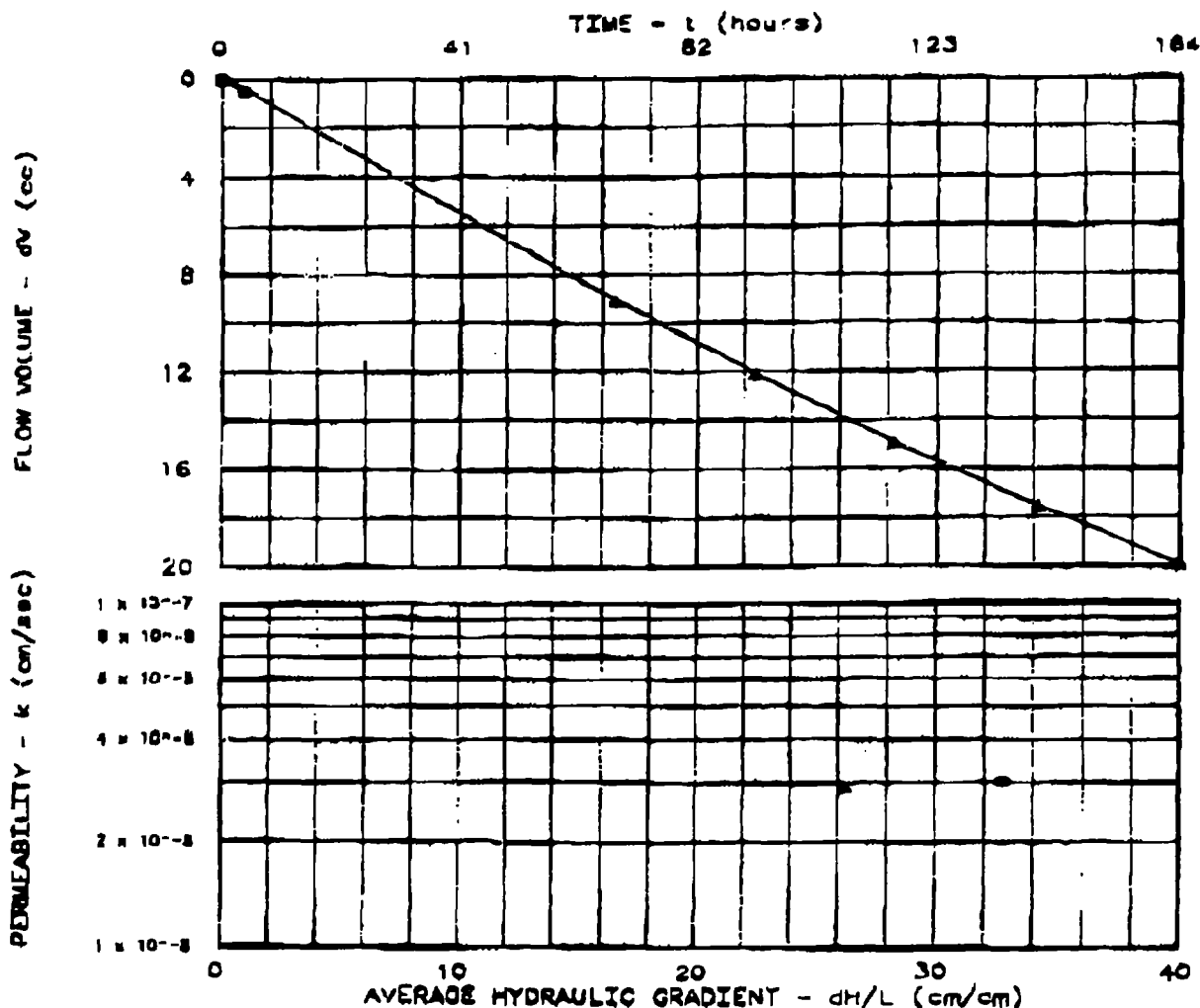
PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 5.15
 Specimen Diameter (cm): 7.04
 Dry Unit Weight (pcf): 107.3
 Moisture Before Test (%): 19.9
 Moisture After Test (%): 20.2
 Run Number: 1 ● 2 ▲
 Cell Pressure (psi): 50.0 50.0
 Test Pressure (psi): 38.0 37.8
 Back Pressure (psi): 35.8 36.0
 Diff. Head (psi): 2.4 1.9
 Flow Rate (cc/sec): 4.68×10^{-8} 3.74×10^{-8}
 Perm. (cm/sec): 3.02×10^{-8} 1.92×10^{-8}

SAMPLE DATA:

Sample Identification: 1.0% Bentonite v/a slurry
 Visual Description: Self-Bentonite
 Remarks: Initial B : 88%
 Final B : 98%
 Maximum Dry Density (pcf):
 Optimum Moisture Content (%):
 Percent Compaction:
 Permeometer type: Flex wall
 Sample type: Remold



Project: Geo-Solutions
 Location: Skinner Landfill
 Date: 05/02/01

Project No.: 01-109-13
 File No.: 938
 Lab No.: Test runs 1&2
 Tested by: DFB
 Checked by: DJN
 Test: CH - Constant head

PERMEABILITY TEST REPORT
GAI Consultants, Inc.

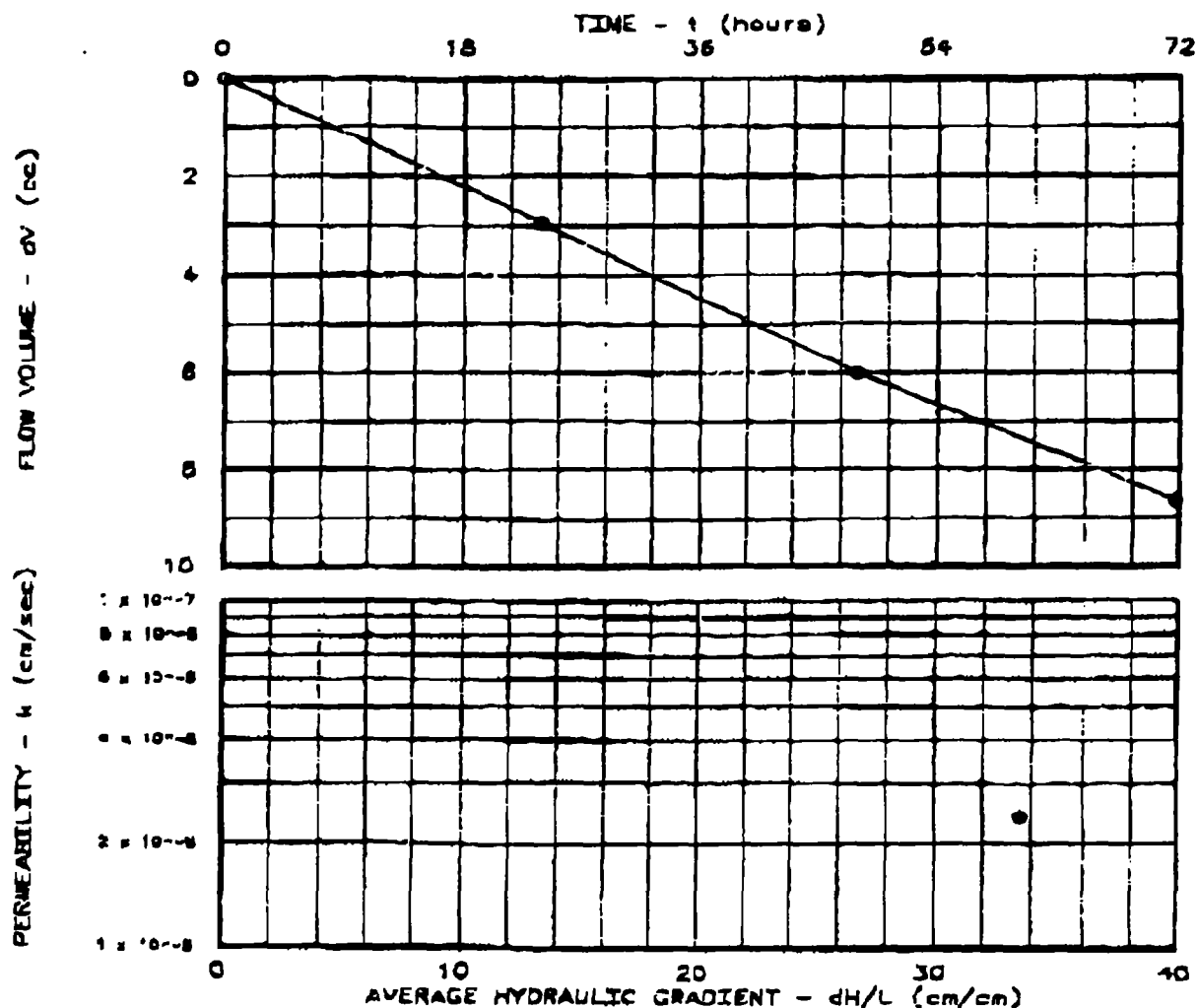
PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 4.65
 Specimen Diameter (cm): 7.05
 Dry Unit Weight (pcf): 106.4
 Moisture Before Test (%): 19.7
 Moisture After Test (%): 20.3
 Run Number: 1 & 2
 Cell Pressure (psi): 50.0
 Test Pressure (psi): 37.9
 Back Pressure (psi): 35.7
 Diff. Head (psi): 2.2
 Flow Rate (cc/sec): 3.31×10^{-6}
 Perm. (cm/sec): 2.40×10^{-8}

SAMPLE DATA:

Sample Identification: 1.5% Bentonite via slurry
 Visual Description: Soil-Bentonite
 Remarks: Initial B : 89K
 Final B : 96K
 Maximum Dry Density (pcf):
 Optimum Moisture Content (%):
 Percent Compaction:
 Permeameter type: Flex wall
 Sample type: Remold



Project: Geo-Solutions
 Location: Skinner Landfill
 Date: 03/03/01

Project No.: 01-108-13
 File No.: 939
 Lab No.: Test run 1
 Tested by: DFS
 Checked by: DJN
 Test: CH - Constant head

PERMEABILITY TEST REPORT
GAI Consultants, Inc.

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 4.32
 Specimen Diameter (cm): 7.03
 Dry Unit Weight (pcf): 105.8
 Moisture Before Test (%): 20.5
 Moisture After Test (%): 19.6
 Run Number: 1 0 2 4
 Cell Pressure (psi): 80.0
 Test Pressure (psi): 38.0
 Back Pressure (psi): 35.7
 Diff. Head (psi): 2.3
 Flow Rate (cc/sec): 2.40×10^{-5}
 Perm. (cm/sec): 1.63×10^{-8}

SAMPLE DATA:

Sample Identification: 2.0% Bentonite
 1% via slurry and 1% via dry addition
 Visual Description: Soil-Bentonite

Remarks: Initial θ : 92%

Final θ : 98%

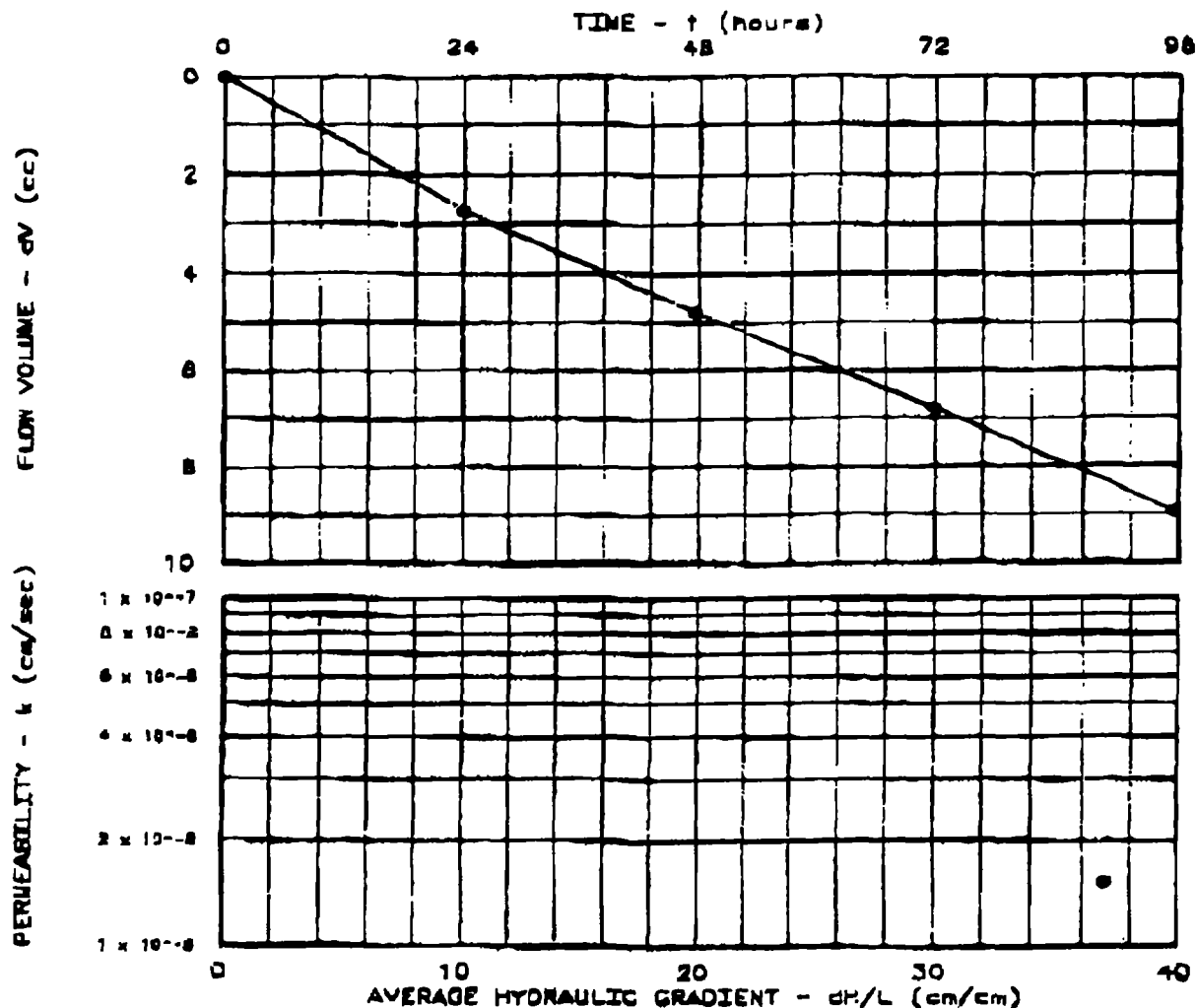
Maximum Dry Density (pcf):

Optimum Moisture Content (%):

Percent Compaction:

Permeometer type: Flex wall

Sample type: Remold

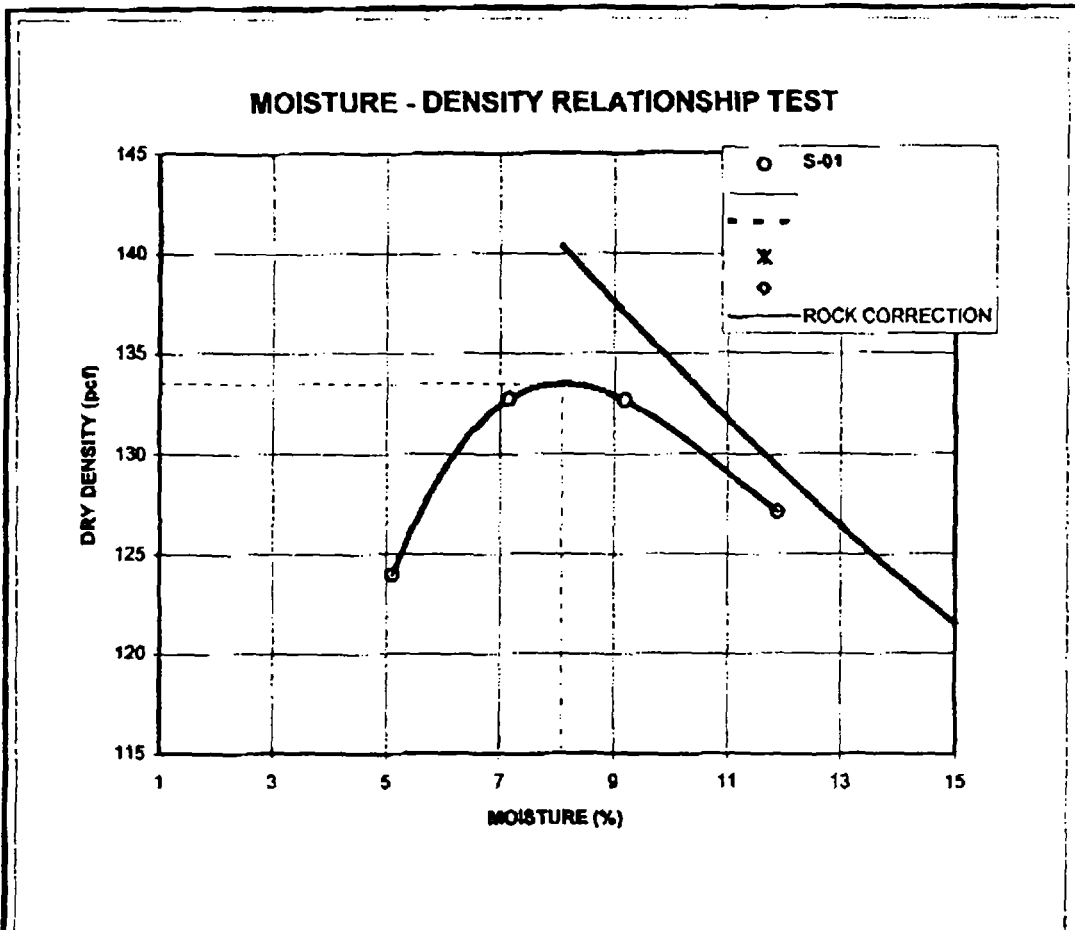


Project: Geo-Solutions
 Location: Skinner Landfill
 Date: 05/03/01

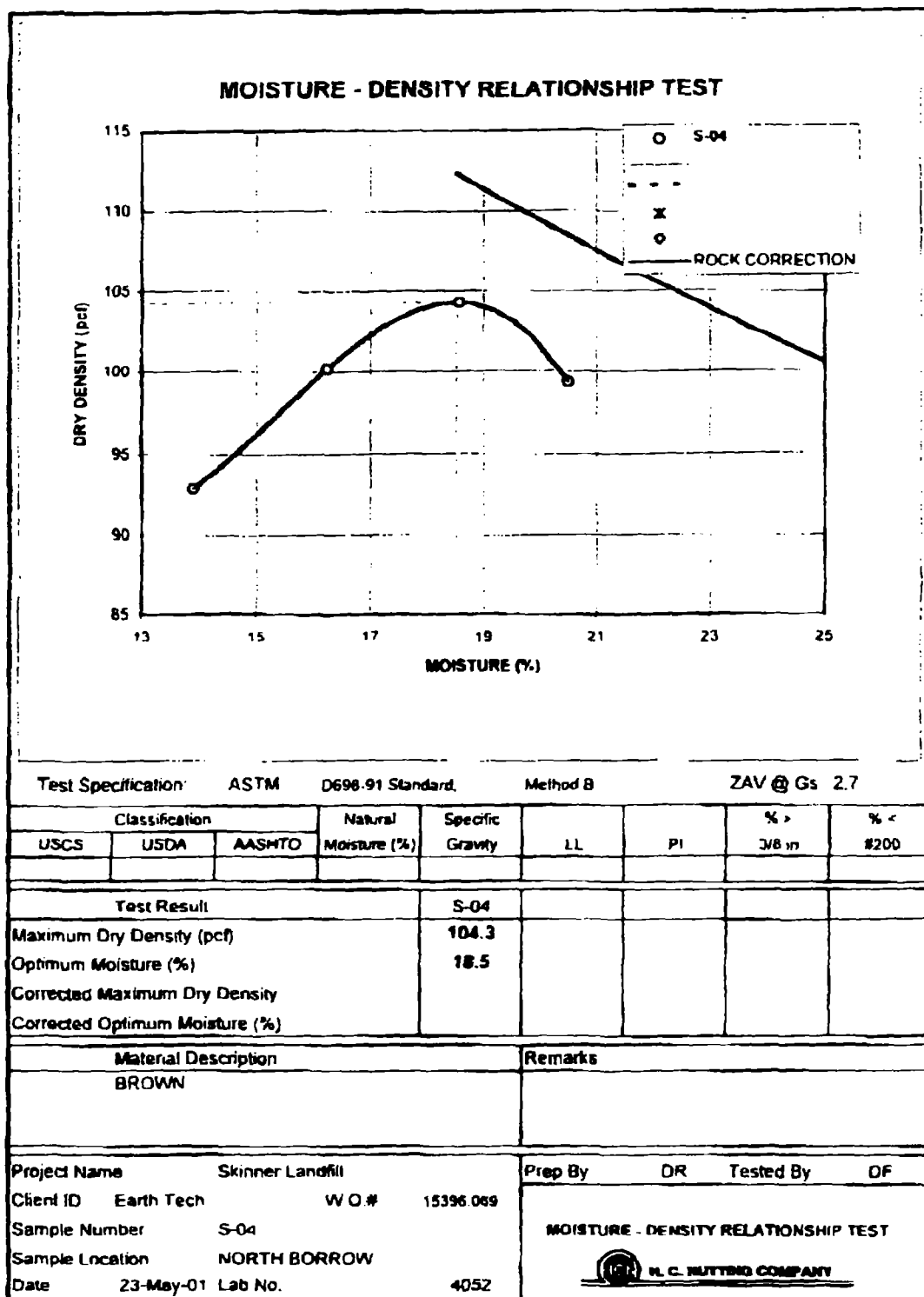
Project No.: 01-108-13
 File No.: 940
 Lab No.: Test run 1
 Tested by: DJS
 Checked by: DJN
 Test: CH - Constant head

PERMEABILITY TEST REPORT

GAI Consultants, Inc.



Test Specification:		ASTM	D698-91 Standard,	Method B	ZAV @ Gs 2.75		
Classification			Natural	Specific			
USCS	USDA	AASHTO	Moisture (%)	Gravity	LL	PI	% > 3/8 in
							% < #200
Test Result				S-01			
Maximum Dry Density (pcf)				133.5			
Optimum Moisture (%)				8.1			
Corrected Maximum Dry Density							
Corrected Optimum Moisture (%)							
Material Description					Remarks		
BROWN SANDY CLAY W/SMALL GRAVEL							
Project Name Skinner Landfill					Prep By DR Tested By DR		
Client ID Earth Tech		W.O.# 15396.069		MOISTURE - DENSITY RELATIONSHIP TEST H. C. NUTTING COMPANY			
Sample Number S-01							
Sample Location TOP OF SLOPE		2-4"					
Date 4-May-01		Lab No. 3447					





Field Density Test Report (Nuclear Density Test)

Date: 5-15-01 Project: Skinner's Landfill Page 1 of 1

Daily Report No.: _____ Project No.: _____

Technician: Mark Feagin AEW Computer Entry: _____ Computer Backcheck: _____

Test Number	Retest Ref. No.	Location and Description	North Coordinate	East Coordinate	Elevation (Ft.)	Soil Description	Probe Depth (Inches)	Wet Density (Pcf)	Dry Density (Pcf)	Moisture (Pcf)	Moisture (%)	Proctor (Pcf)	% Compaction
1		South Slope	491440	1432105	711	brcl/s	8"		124.2		6.1	129.1	96.2
2		"	491485	1432140	711	"	"		121.0		11.6	"	93.7
3		"	491320	1432120	712	"	"		124.4		9.2	"	96.3
4		"	491305	1432130	712	"	"		120.3		7.8	"	93.1
5		"	491370	1432130	713	"	"		123.0		6.5	"	95.2
6		"	491285	1432125	713	"	"		128.4		5.1	"	99.4
7		"	491360	1432130	714	"	"		118.7		9.2	"	91.9
8		"	491335	1432125	714	"	"		124.5		8.3	"	96.4

Comments: _____

**SKINNER LANDFILL
WEST CHESTER, OH**
SLURRY EXCAVATION

SLURRY TRENCH

DAILY QC RESULTS

DATE: 5/31/01INSPECTOR: B. George
Geo-SolutionsWIDTH: 24 inches

DATE	STATION	FINAL RECORD DEPTH FROM PLATFORM	PANEL LENGTH	PANEL AREA EXCAVATED	DAILY SF	AVG. SF PER DAY	SF EXCAVATED TO DATE
		FT	FT	SF			
5/29/01	3+65	0	Lead-In	0			
5/29/01	3+75	10	Lead-In	0			
5/29/01	3+78	14.5	Lead-In	0			
5/29/01	3+80	16	10	30.5			
5/29/01	3+90	16	10	160			
5/29/01	4+00	15.5	10	157.5			
5/29/01	4+10	15.5	10	155			
5/29/01	4+20	15.5	10	155			
5/29/01	4+30	14.5	10	150			
5/29/01	4+40	14.5	10	145			
5/29/01	4+50	14.5	10	145			
5/29/01	4+60	15.5	10	150	1248		1248
5/30/01	4+70	16	10	157.5			
5/30/01	4+80	16.5	10	162.5			
5/30/01	4+90	16	10	162.5			
5/30/01	5+00	16	10	160			
5/30/01	5+10	17	10	165			
5/30/01	5+20	17	10	170			
5/30/01	5+30	17	10	170			
5/30/01	5+40	17	10	170			
5/30/01	5+50	17.5	10	172.5			
5/30/01	5+60	21	10	192.5			
5/30/01	5+70	22	10	215			
5/30/01	5+80	22	10	220	2117.5	1683	3365.5
5/31/01	5+90	22	10	220			
5/31/01	6+00	22	10	220			
5/31/01	6+10	22	10	220	660	1342	4025

COMMENTS:

SIGNED: _____
Contractor's QC SupervisorSIGNED: _____
Owner's Representative

**SKINNER LANDFILL
WEST CHESTER, OH**
FRESH SLURRY
DAILY QC RESULTS

 DATE: 05/31/01

 INSPECTOR: B. George
Geo-Solutions

FRESH SLURRY: VISCOSITY (4 TIME PER SHIFT) MINIMUM 40 SECONDS

TIME:	8:00	RESULT:	44	SECONDS	SECONDS
	10:30		45		

DENSITY: (2 TIME PER SHIFT) MINIMUM 64 PCF

TIME:	8:00	RESULT:	64.5	PCF
			8:00	

FILTRATE LOSS (Once per Truckload) <30 CC IN 30 MINUTES

TIME:	13:30	RESULT:	12	CC
DATE:	5/21/01			

Ph: (1 TIME PER SHIFT)

TIME:	8:00	RESULT:	8

 Number of 100# bags bentonite mixed this date for slurry
 Number of 100# bags bentonite mixed to date for slurry

30
393

COMMENTS:

 SIGNED: _____
Contractor's QC Supervisor

 SIGNED: _____
Owner's Representative

SKINNER LANDFILL
WEST CHESTER, OH

TRENCH SLURRY

DAILY QC RESULTS

INSPECTOR: B. George
Geo-Solutions

DATE: 05/31/01TRENCH SLURRY: VISCOSITY (2 TIMES PER SHIFT) MINIMUM 40 SECONDS**FIRST SAMPLING****SECOND SAMPLING**

TIME:	<u>8:45</u>	RESULT: <u>105</u> SEC.	TIME:	<u>14:00</u>	RESULT: <u>83</u> SEC.
STATION	<u>5+70</u>		STATION	<u>5+80</u>	
SAMPLE DEPTH:	<u>Bottom</u>		SAMPLE DEPTH:	<u>Bottom</u>	

DENSITY: (2 TIMES PER SHIFT) 64-93 PCF**FIRST SAMPLING****SECOND SAMPLING**

TIME:	<u>8:45</u>	RESULT: <u>89</u> PCF	TIME:	<u>14:00</u>	RESULT: <u>84</u> PCF
STATION	<u>5+70</u>		STATION	<u>5+80</u>	
SAMPLE DEPTH:	<u>Bottom</u>		SAMPLE DEPTH:	<u>Bottom</u>	

COMMENTS:

SIGNED:

Contractor's QC Supervisor

SIGNED:

Owner's Representative

SKINNER LANDFILL
WEST CHESTER, OHS-B BACKFILL

DAILY QC RESULTS

DATE: 05/31/01INSPECTOR: B. George

SLUMP: (3-6 in)

(1 per shift)

STATION
5+20

TIME:
8:30

RESULT:
4

 INCHES

UNIT WEIGHT:

(2 per shift)

STATION
5+20
5+40

TIME:
8:30
2:10

RESULT:
121
120

 PCF

COMMENTS:

Backfill sample # 2 was collected at sta. 5+20 this shift, for testing off site.

SIGNED: _____

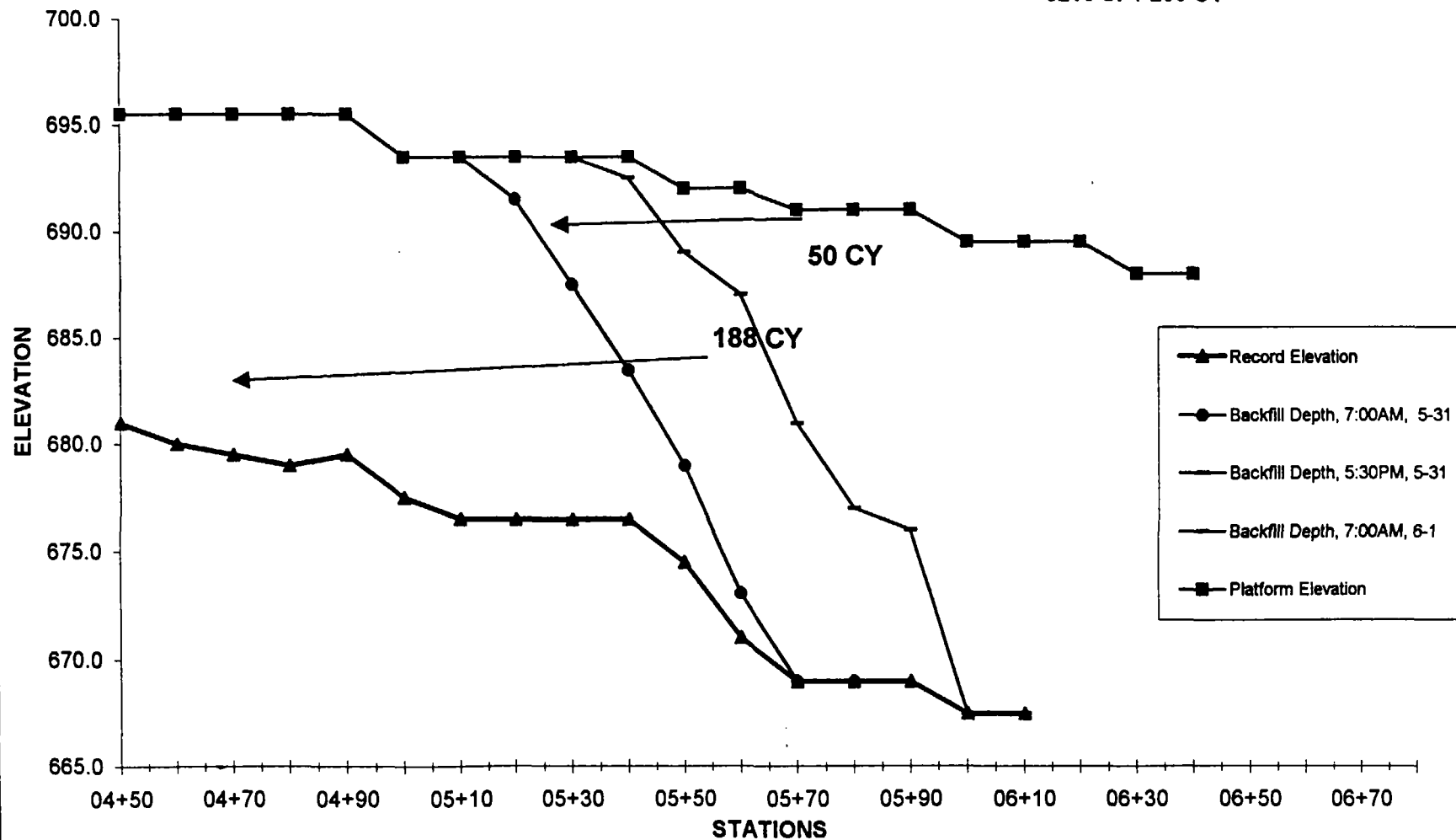
Contractor's QC Supervisor

SIGNED: _____

Owner's Representative

SKINNER LANDFILL SUPERFUND SITE BACKFILL SLOPE 5-31-01

AREA BACKFILLED TO DATE
3216 SF / 238 CY



GEO-SOLUTIONS/REMTECH

Skinner Landfill Superfund Site
West Chester, OH

DAILY BACKFILL SLOPE AND AREA DATA
DATE: 5/31/01

STATION	EL	RECORD	BACKFILL	BACKFILL	BACKFILL	PLATFORM	RECORD	BACKFILL	BACKFILL	BACKFILL	TOTAL	TOTAL	TOTAL
		DEPTH	DEPTH	DEPTH			DEPTH	DEPTH	DEPTH	DEPTH	AREA	AREA	AREA
		7:00AM	5:30PM	7:00AM				7:00AM	5:30PM	7:00AM	7:00AM	5:30PM	7:00AM
		31-May	31-May	1-Jun	EL	FT		31-May	31-May	1-Jun	AM	PM	AM
		EL	EL	EL				FT	FT	FT	SF	SF	SF
3+65	697.0	697.0	697.0	697.0	697	0		0	0	0			
3+75	687.0	697.0	697.0	697.0	697	10		0	0	0	0	0	0
3+78	682.5	697.0	697.0	697.0	697	14.5		0	0	0	0	0	0
3+80	681.0	697.0	697.0	697.0	697	16		0	0	0	30.5	30.5	30.5
3+90	681.0	697.0	697.0	697.0	697	16		0	0	0	160	160	160
4+00	681.5	697.0	697.0	697.0	697	15.5		0	0	0	157.5	157.5	157.5
4+10	681.5	697.0	697.0	697.0	697	15.5		0	0	0	155	155	155
4+20	681.0	696.5	696.5	696.5	696.5	15.5		0	0	0	155	155	155
4+30	682.0	696.5	696.5	696.5	696.5	14.5		0	0	0	150	150	150
4+40	682.0	696.5	696.5	696.5	696.5	14.5		0	0	0	145	145	145
4+50	681.0	695.5	695.5	695.5	695.5	14.5		0	0	0	145	145	145
4+60	680.0	695.5	695.5	695.5	695.5	15.5		0	0	0	150	150	150
4+70	679.5	695.5	695.5	695.5	695.5	16		0	0	0	157.5	157.5	157.5
4+80	679.0	695.5	695.5	695.5	695.5	16.5		0	0	0	162.5	162.5	162.5
4+90	679.5	695.5	695.5	695.5	695.5	16		0	0	0	162.5	162.5	162.5
5+00	677.5	693.5	693.5	693.5	693.5	16		0	0	0	160	160	160
5+10	676.5	693.5	693.5	693.5	693.5	17		0	0	0	165	165	165
5+20	676.5	691.5	693.5	693.5	693.5	17		2	0	0	160	170	170
5+30	676.5	687.5	693.5	693.5	693.5	17		6	0	0	130	170	170
5+40	676.5	683.5	692.5	692.5	693.5	17		10	1	1	90	165	165
5+50	674.5	679.0	689.0	689.0	692	17.5		13	3	3	57.5	152.5	152.5
5+60	671.0	673.0	687.0	687.0	692	21		19	5	5	32.5	152.5	152.5
5+70	669.0	669.0	681.0	681.0	691	22		22	10	10	10	140	140
5+80	669.0	669.0	677.0	677.0	691	22		22	14	14	0	100	100
5+90	669.0		676.0	676.0	691	22			15	15		75	75
6+00	667.5		667.5	667.5	689.5	22			22	22		35	35
6+10	667.5		667.5	667.5	689.5	22			22	22		0	0
6+20					689.5								
6+30					688								
6+40					688								
6+50					688.5								
6+60					686.5								
6+70					686.5								
6+80					686.5								
6+90					686.5								
7+00					685.5								
7+10					685.5								
7+20					685.5								
7+30					685.5								
7+40					685								
7+50					685								
7+60					685								
7+50					685								
7+40					685								
7+30					685								
											2536	3216	3216
											SF	SF	SF
											188	238	238
											CY	CY	CY

GAI Consultants, Inc.**VISUAL CLASSIFICATION
MOISTURE CONTENT**PROJECT Geo Solutions
PROJECT NO. 2001-104-13TESTED BY DES
CALC. BY DES
CHECKED BY DJADATE 4/13/01
DATE 4/19/01
DATE 5/15/01MOISTURE CONTENT

Sample No.	201							
Depth								
Tare No.								
WT T + WS	1006.94							
WT T + DS	955.01							
WT Tare	232.22							
WT DS	381.78							
WT Water	81.93							
WC	13.60							

VISUAL CLASSIFICATION

Classifi- cation and Comments	As Received							
U.S.C.S. Symbol								

WASH TEST #200 SIEVE **ASTM D-1140**

GALCONAULT/ANDR INC.

PROJECT NAME: <u>Geo Solutions</u>	TESTED BY: <u>QES</u>	DATE: <u>5/23/01</u>
<u>SKINNER LANDFILL Cuy. OH</u>	CALC. BY: _____	DATE: _____
PROJECT NUMBER: <u>1001-109-12</u>	CHECKED BY: <u>DJN</u>	DATE: <u>5/31/01</u>

SAMPLE No. SITE SOIL

TOTAL SAMPLE WT.

WASHED SAMPLE WT.

WT. 972.14
13.60%

WT. OF SAMPLE + TARE 955.36
WT. OF TARE 0
WT. OF DRY SAMPLE 955.36 [B]
A = [(B - C) / B] x 100 = 99.01 % PASS #200 SIEVE

WT. OF SAMPLE + TARE 479.15
WT. OF TARE 0
WT. OF SAMPLE 479.15 [C]

SAMPLE No. SITE SOIL

TOTAL SAMPLE WT.

WASHED SAMPLE WT.

WT. 1067.27
13.60%

WT. OF SAMPLE + TARE 939.67
WT. OF TARE 0
WT. OF DRY SAMPLE 939.67 [B]
A = [(B - C) / B] x 100 = 99.01 % PASS #200 SIEVE

WT. OF SAMPLE + TARE 494.14
WT. OF TARE 0
WT. OF SAMPLE 494.14 [C]

SAMPLE No. _____

TOTAL SAMPLE WT.

WASHED SAMPLE WT.

WT. OF SAMPLE + TARE _____
WT. OF TARE _____
WT. OF DRY SAMPLE _____ [B]
A = [(B - C) / B] x 100 = _____ % PASS #200 SIEVE

WT. OF SAMPLE + TARE _____
WT. OF TARE _____
WT. OF SAMPLE _____ [C]

SAMPLE No. _____

TOTAL SAMPLE WT.

WASHED SAMPLE WT.

WT. OF SAMPLE + TARE _____
WT. OF TARE _____
WT. OF DRY SAMPLE _____ [B]
A = [(B - C) / B] x 100 = _____ % PASS #200 SIEVE

WT. OF SAMPLE + TARE _____
WT. OF TARE _____
WT. OF SAMPLE _____ [C]

A - PERCENTAGE OF MATERIAL FINER THAN A # 200 (75- m) SIEVE BY WASHING
B - ORIGINAL DRY WEIGHT OF SAMPLE, g
C - DRY WEIGHT OF SAMPLE AFTER WASHING, g

LETTER OF SUBMITTAL

Submittal # 007

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: May 14, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.: 02750 - Page 3 - 2.06	
SUBJECT: Decon Pad Course Aggregate	

WE ARE SENDING YOU:

- ☒ **Attached**
- ☐ Copy of letter ☐ Change order ☐ Under separate cover via the following items:
- ☐ Flow sheets ☐ P & ID ☐ Prints ☐ Specifications
- ☐ Shop drawings ☐ Plans ☒ Other ☐ Samples


Item Number	Number of Copies	Document Type	Description
1	6	Original	Course Aggregate Gradation

THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
- ☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
- ☒ As requested ☐ Returned for corrections ☐ Return corrected prints
- ☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
- ☐ FOR BIDS DUE

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick 

Engineer's Approval:

RONALD F. ROELKER
5-15-01

EARTH TECH



A tyco INTERNATIONAL LTD. COMPANY

Date: May 11, 2001Client: SKINNER LandfillProject No.: 38335.05

(859-442-2311)

ATTN: RON ROELKER, EARTH TECH

HERE ARE the Specs. for Grainsize / GRADATION

- WE WANT to USE the 411's for the Decor. PAD. Is it acceptable?

(- Remedial Design Vol. III of IV List of Specs. (02750-3) SKINNER 72680
COARSE Aggregate SIEVE SIZE Specs.

- This is what MARTIN MARIETTA'S GRADATIONS ARE.

- ARE these acceptable?

- Also are the * 57's acceptable pertaining to the specs.

EARTH TECH
OFFICE TRAILER

PHONE - 755-8963

FAX 755-8967

5-13-01

RFR

02750-3

2.06

Coarse Aggregate

411 is O.K.

#57's are not.

MARTIN MARIETTA MATERIALS LYNCHBURG LIMESTONE (459)

TYPICAL GRADATION

* #57	✓				NO		NO	NO
SIEVE SIZE	1-1/2"	1"	3/4"	1/2"	3/8"	#4	#8	P-200
GRADATION	100	100	86	32	11	3	1	1.3

#4							
SIEVE SIZE	1 1/2"	1"	3/4"	1/2"	3/8"	P-200	
GRADATION	100	47	9	2	2	1.0	

#2							
SIEVE SIZE	3"	2-1/2"	2"	1-1/2"	1"	3/4"	P-200
GRADATION	100	100	86	32	1	1	1.2

* #411/617	✓			✓		✓						✓	
SIEVE SIZE	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	P-#200	% loss by	
GRADATION	100	93	79	70	47	29	18	12	12	11	9.6	Washing	

NOTE: THESE ARE TYPICAL GRADATION; WHICH MAY VARY SLIGHTLY
FROM DAY TO DAY.

LETTER OF SUBMITTAL

Submittal # 009

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: May 21, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.: 02395 - 04	
SUBJECT: Source of Bentonite	

WE ARE SENDING YOU:

- ☒ Attached
- ☐ Copy of letter ☐ Change order ☐ Under separate cover via the following items:
- ☐ Flow sheets ☐ P & ID ☐ Prints ☐ Specifications
- ☐ Shop drawings ☐ Plans ☒ Other ☐ Samples

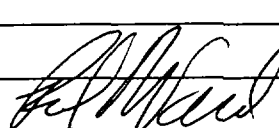
Item Number	Number of Copies	Document Type	Description
1	2	Original	Bentonite Source

THESE ARE TRANSMITTED as checked below:

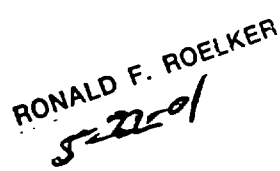
- ☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
- ☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
- ☒ As requested ☐ Returned for corrections ☐ Return corrected prints
- ☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
- ☐ FOR BIDS DUE

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick 

Engineer's Approval:


RONALD F. ROELKER

SKINNER LANDFILL CLOSURE Submittal Form

CONTRACTOR'S Name: Pro-Terra Environmental

Date: 5/16/01

Reference

Item: SOURCE OF BENTONITE
w/ VERIFICATION OF
MEETING SPECIFICATION

Specification: SOIL-BENTONITE SLURRY TRENCH

Section : 02395

Page No.: 3

Para. No.: ~~1.06.D~~ 2.01 B

Drawing No.: _____ of _____

Location: _____

Variation: _____

Submittal No.: 02395-04

Approved by: M. J. C. [Signature]

WYO-BEN, INC.

CERTIFICATE OF QUALITY

DATE: 05/14/01

TO: GEO-SOLUTIONS, INC.
SKINNER LANDFILL CLOSURE
8750 CINCINNATI-DAYTON ROAD
WEST CHESTER, OH 45080
FAX : (412) 825-5127

ORDER NO: OP 1858-1
LOT NO: 04110121
TRUCK NO: MONTANA 5
PRODUCT: HYDROGEL

WE HEREBY CERTIFY THAT THE ABOVE PRODUCT DOES MEET OR EXCEED
ALL SPECIFICATIONS SET FORTH IN API 13A SECTION 4, FIFTEENTH EDITION
FOR BENTONITE.

WYO-BEN, INC.

BY 
ROD PARTRIDGE
QUALITY ASSURANCE

STUCCO PLANT
WYOMING OPERATIONS OFFICE

P.O. BOX 1072
GREYSULL, WYOMING 82426 USA
307-785-4446 TELEFAX 307-785-2864

SAGE CREEK PLANT
Lovell, Wyoming

LOCERNE PLANT
Thermopola, Wyoming

CORPORATE HEADQUARTERS
Billings, Montana

LETTER OF SUBMITTAL

Submittal # 010

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: May 21, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.: 02750 - 01 / 02750 - 06	
SUBJECT: Decontamination Pad	

WE ARE SENDING YOU:

- ☒ Attached ☐ Under separate cover via the following items:
- ☐ Copy of letter ☐ Change order ☐ Prints ☐ Specifications
- ☐ Flow sheets ☐ P & ID ☐ Samples
- ☐ Shop drawings ☐ Plans ☒ Other

Item Number	Number of Copies	Document Type	Description
1	2	Original	Product description of non-woven fabric
2	2	Original	Cert. Of analysis for geotextile
3	2	Original	Product specifications Non-Woven Geotextile
4	2	Original	Gradation of 411 stone

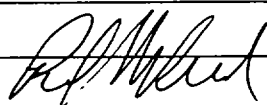
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- ☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
- ☒ As requested ☐ Returned for corrections ☐ Return corrected prints
- ☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
- ☐ FOR BIDS DUE

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick



Engineer's Approval:

RONALD F. ROELKER
5-22-01

GEOTEXTILES**TNS****ADVANCED TECHNOLOGIES**

681 DeYoung Road

Greer, South Carolina 29651

Phone: (800) 867-5181

Fax: (864) 879-4639

Geotextile Product Description Sheet**Style TNS E100**

TNS E100 is a superior quality, nonwoven geotextile produced by needlepunching together 100% polypropylene staple fibers in a random network to form a high strength dimensionally stable fabric. The polypropylene fibers are specially formulated to resist ultraviolet light deterioration, and are inert to commonly encountered soil chemicals. The fabric will not rot or mildew, is non-biodegradable, and is resistant to damage from insects and rodents. Polypropylene is stable within a pH range of 2 to 13. TNS E100 conforms to the physical property values listed below:

Fabric Property	Test Method	Units	Minimum Average Roll Value
Weight	ASTM D 3776	oz/sq.yd.	10.0
Thickness*	ASTM D 1777	mils	110
Grab Tensile	ASTM D 4632	lbs.	270
Grab Elongation	ASTM D 4632	%	50
Trap Tear	ASTM D 4533	lbs.	100
Puncture	ASTM D 4833	lbs	165
Permitivity*	ASTM D 4491	1/sec	0.94*
AOS	ASTM D 4751	U.S. Sieve	100*
Permeability*	ASTM D 4491	cm/sec	.30
Mullen Burst	ASTM D 3786	psi	560
Water Flow*	ASTM D 4491	gpm/sqft	75
UV Resistance after 500 hrs.	ASTM D 4355	% Strength Retained	70

Packaging	
Roll Dimensions-Foot (Meters)	15 x 570 (4.6 x 175)
Square Yards (Square Meters) Per Roll	950 (805)
Estimated Roll Weight-Lbs. (Kg)	620 (282)

* At time of manufacturing, handling may change these properties.

To the best of our knowledge, the information contained herein is accurate. However, TNS Advanced Technologies cannot anticipate all conditions under which TNS product information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety or suitability of our products either alone or in combination with other products. Final determination of the suitability of any information or material for the use contemplated, of its manner of use, and whether the suggested use infringes any patents is the sole responsibility of the user.

American Synthetic Fiber

312 S Holland Drive
Pendergrass, GA 30567

Certificate of Analysis

Customer: TNS
Merge Number: 11051
Lot Number: 21190

Product Type: 101
Description: 8 x 4 Black

Parameter	Unit	Average	Standard Deviation
Denier:	g/9000 m	8.0	0.26
Tenacity:	g/den	4.3	0.14
Elongation:	%	63	16.0
Crimp:	#/inch	7.2	0.79
Fiber Length	inches	3.85	0.09
Spin Finish:	%	0.95	0.08

The above information has been based on production lot averages. If you have any questions or concerns, please, contact the Quality Department.

Jeannie Presley
Quality Assurance Department
J07

American Synthetic Fiber

External Product Specifications

Product Type: 8 x 4 Black

Merge Number: 11051

Comments:

The following are proposed preliminary product specifications for 8 x 4 Black fiber produced by American Synthetic Fiber LLC. The following specifications are subject to change with notification.

Parameter	Unit	Reference Method	Specifications	
			Target	Limit
Denier	g/ 9,000 m	QA - 001	8.0	+/- 0.6
Tenacity	g/ denier	QA - 001	4.4	+/- 0.6
Elongation	%	QA - 001	8.0	+/- 40
Crimp	per inch	QA - 001	8.0	+/- 3.0
Fiber Length	inches	QA - 002	4.0	+/- 0.3
Spin Finish	%	QA - 003	0.95	+/- 0.3
Moisture	%	QA - 004	1.5	+/- 1.0
Melt Flow	g/ 10 minutes	QA - 005	11.0	+/- 4.0
Color	DE	QA - 006	<1.5	

Originated: 2/21/01

MARTIN MARIETTA MATERIALS LYNCHBURG LIMESTONE (459)

TYPICAL GRADATION



#57

SIEVE SIZE	1-1/2"	1"	3/4"	1/2"	3/8"	#4	#8	P-200
GRADATION	100	100	86	32	11	3	1	1.3

#4

SIEVE SIZE	1 1/2"	1"	3/4"	1/2"	3/8"	P-200
GRADATION	100	47	9	2	2	1.0

#2

SIEVE SIZE	3"	2-1/2"	2"	1-1/2"	1"	3/4"	P-200
GRADATION	100	100	96	32	1	1	1.2



#411/617

SIEVE SIZE	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	P-#200
GRADATION	100	93	79	70	47	29	18	12	12	11	9.6

c/loss by
washing

NOTE: THESE ARE TYPICAL GRADATION; WHICH MAY VARY SLIGHTLY
FROM DAY TO DAY.

LETTER OF SUBMITTAL

Submittal # 011

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax: (859) 442-2306

DATE: May 21, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.:02750 - 2.03 A & 208 A	
Specification Section No.:02750 - 03	
SUBJECT: Additional Decontamination Pad Info	

WE ARE SENDING YOU:

- ☒ **Attached**
- ☐ Copy of letter ☐ Change order ☐ Under separate cover via the following items:
- ☐ Flow sheets ☐ P & ID ☐ Prints ☐ Specifications
- ☐ Shop drawings ☐ Plans ☒ Other ☐ Samples

Item Number	Number of Copies	Document Type	Description
1	2	Original	CSP Riser
2	2	Original	Cast in Place Concrete
3	2	Original	Material Spec's for Re-bar
4	2	Original	Frame & Grate for Riser Pipe

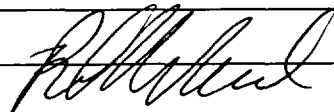
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- ☐ FOR BIDS DUE

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick



Engineer's Approval:

RONALD F. ROELKER
5-22-01

Approximate Weight/Foot Corrugated Steel Pipe

(Estimated Average Weights—Not for Specification Use)

1 1/2" x 1/2" Corrugation

Inside Diameter, in.	Specified Thickness, in.	Galvanized & ALUMINIZED	Pull Coated
8	0.052 0.064	4 5	5 6
9	0.052 0.064	5 6	6 7
10	0.052 0.064	6 7	7 8

2 1/2" x 1/2" Corrugation

Inside Diameter, in.	Specified Thickness, in.	Galvanized & ALUMINIZED*	Pull Coated	Coated & PAVED-INVERT	SMOOTH-FLO	HELICOR CL
12	0.052 0.064 0.079	8 10 12	10 12 14	13 15 17		
15	0.052 0.064 0.079	10 12 15	13 15 18	16 18 21	26 28 31	
18	0.052 0.064 0.079	12 15 18	16 19 22	19 22 25	31 34 37	
21	0.052 0.064 0.079	14 17 21	18 21 25	23 26 30	36 39 43	
24	0.052 0.064 0.079 0.109	15 19 24 33	20 24 29 38	26 30 35 44	41 45 50 59	65 69 77
30	0.052 0.064 0.079 0.109	20 24 30 41	26 30 36 47	32 36 42 53	51 55 60 72	82 87 96
36	0.052 0.064 0.079 0.109 0.138	24 29 36 49 62	31 36 43 58 69	39 44 51 64 77	50 65 75 90 100	98 104 116 127
42	0.052 0.064 0.079 0.109 0.138	28 34 42 57 72	36 42 50 65 80	45 51 59 74 89	71 77 85 100 115	114 121 135 149
48	0.064 0.079 0.109 0.138 0.168	38 46 65 82 100	48 58 75 92 110	57 67 84 101 119	85 95 112 129 147	128 138 154 170 186
54	0.079 0.109 0.138 0.168	54 73 92 112	65 84 103 123	76 95 114 134	105 124 143 163	156 173 191 209
60	0.109 0.138 0.168	81 103 124	92 114 135	106 128 149	140 162 183	192 212 232
66	0.109 0.138 0.168	89 113 137	101 125 149	117 141 165	160 180 210	211 233 255
72	0.138 0.168	123 149	137 163	154 180	210 236	234 278
78	0.168	181	177	194	260	302
84	0.168	173	190	208	270	325
90	0.168	186	204	224	288	348
96	0.168	196	217	239	309	371

3' x 1" or 5' x 1" Corrugation

Inside Diameter, in.	Specified Thickness, in.	Galvanized & ALUMINIZED*	Pull Coated	Coated & PAVED-INVERT	SMOOTH-FLO	HELICOR CL
54	0.064 0.079 0.109 0.138 0.168	50 61 83 106 129	66 77 100 123 146	84 95 118 140 163	138 149 171 194 217	157 207 236 245 264
60	0.064 0.079 0.109 0.138 0.168	55 67 92 118 143	73 86 110 136 161	93 105 130 156 181	153 165 190 216 241	218 229 251 272 293
66	0.064 0.079 0.109 0.138 0.168	60 74 101 129 157	80 94 121 149 177	102 116 143 171 199	168 181 208 236 264	240 256 276 299 322
72	0.064 0.079 0.109 0.138 0.168	66 81 110 140 171	88 102 132 162 193	111 126 158 186 217	183 197 227 257 288	262 275 304 316 331
78	0.064 0.079 0.109 0.138 0.168	71 87 119 152 185	95 111 143 178 209	121 137 169 202 235	198 214 246 279 312	254 269 295 316 338
84	0.064 0.079 0.109 0.138 0.168	77 94 128 164 199	102 119 154 189 224	130 147 182 217 253	213 230 264 300 335	274 287 314 335 358
90	0.064 0.079 0.109 0.138 0.168	82 100 137 175 213	108 127 164 202 240	140 158 195 233 271	228 246 283 321 359	
96	0.064 0.079 0.109 0.138 0.168	87 107 147 188 228	116 138 176 217 257	149 169 209 250 290	242 262 302 342 383	
102	0.064 0.079 0.109 0.138 0.168	93 114 155 198 241	124 145 186 229 272	158 179 220 263 306	258 279 320 363 406	
108	0.079 0.109 0.138 0.168	120 165 211 256	153 198 244 289	188 233 279 324	295 340 386 431	
114	0.079 0.109 0.138 0.168	127 174 222 271	162 209 257 308	199 246 294 343	312 359 407 456	
120	0.109 0.138 0.168	183 234 284	220 271 321	259 310 360	378 429 479	
126	0.138	247	285	326	452	
132	0.158	259	299	342	474	
138	0.168	314	354	397	529	
144	0.168	270	312	357	495	
		328	370	415	553	
144	0.168	344	388	435	579	

* Weights for polymer-coated pipe are 1% to 4% higher, vary

Materials

Pipe and pipe-arch are fabricated from four materials. Galvanized steel is used for normal applications. Polymer-coated steel, ALUMINIZED STEEL Type 2, and FIBER-BONDED steel are used for increased durability.

Dow Chemical Company's TRENCHCOAT heavy-gage protective polymer material provides excellent protection from soil side corrosion and non-abrasive water side corrosion. This tough plastic coating can triple the life of galvanized culverts.

ALUMINIZED STEEL Type 2 material significantly enhances the pipe's durability while retaining the inherent benefits of corrugated steel pipe for use in municipal storm sewers or other drainage projects.

The pipe is fabricated from steel coils which have been hot-dip coated in commercially pure aluminum. More than 43 years of field testing have proven that ALUMINIZED STEEL Type 2 corrugated steel pipe can provide 75 years or more of service life when used in the recommended environmental range.

For maximum durability under corrosive conditions, such as acid mine runoff or salt water installations, FIBER-BONDED Corrugated Steel Pipe has performed successfully since 1936.

FIBER-BONDED is made from a black steel sheet which passes through a hot-dip galvanizing process. As the sheet emerges, a layer of fibers is pressed into the molten zinc on both surfaces bonding the fibers into the coated-steel

substrate. The sheets are corrugated and fabricated into a durable, long-lasting corrugated steel pipe. Then the pipe is asphalt-coated. Adhesion of the bituminous coating is the key to pipe durability.

Coatings and pavements

The variety of protective coatings available on corrugated metal pipe and pipe-arch can provide the degree of corrosion protection dictated by the site. Each system — galvanized, galvanized and asphalt coated, TRENCHCOAT, ALUMINIZED STEEL Type 2, and FIBER-BONDED — provides a degree of protection for increasingly corrosive installations.

The asphalt coating can be added to corrugated steel pipe for additional protection. This coating is of greatest benefit when soil side corrosion is the concern.

In the environmental range of pH 5-9 and resistivities as low as 1,500 ohm-cm, 43-year-old installations have shown that ALUMINIZED STEEL Type 2 provides a service life three to 10 times longer than plain galvanized steel.

PAVED-INVERT, for erosion protection, is a shop-applied asphaltic paving along the invert of the pipe, where most pipe wear takes place.

Linings

SMOOTH-FLO is a smooth, continuous (fully circumferential) asphalt lining for added hydraulic efficiency. All interior corrugations are filled with asphalt as the pipe is spun at high speeds, producing a smooth lining.

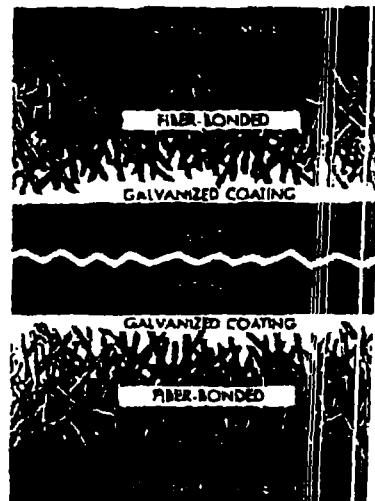
HEL-COR CL incorporates a concrete lining that increases the hydraulic capacity of the pipe while retaining all the benefits inherent in corrugated steel pipe. The lining is applied to cover the corrugations of the pipe to a depth of not less than 1/4". The lining is applied by a method that provides a surface with excellent hydraulic efficiency. See hydraulic tables, Page 10.

The Reference Specifications on Page 2 apply to these materials.

PURE ALUMINUM COATING

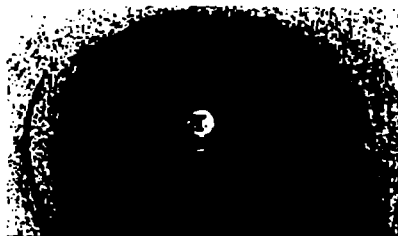


This is a photomicrograph of the free aluminum and alloy layer on ALUMINIZED STEEL Type 2.



With FIBER-BONDED steel pipe, fibers are embedded in the molten zinc. The improved surface results in greater adhesion of asphalt coatings and increases long-term durability.

For more information on these materials, coatings, pavements and linings, call your local Sales Engineer.



HEL-COR CL's smooth concrete interior surface provides hydraulic efficiency.

Installation

Economics in installation

Corrugated steel drainage structures from [REDACTED] can be installed quickly and easily. The following recommendations are based on actual experiences covering thousands of installations. While incomplete in detail, they serve to illustrate the relative simplicity with which corrugated steel structures can be installed.

Preparing the foundation

Corrugated steel structures can be installed successfully only on a properly prepared foundation. The foundation bed should offer uniform support to the pipe and help seal the corrugations in the underlying soil. Frozen soil, sod, large rocks or other similar objects must be removed from the bed.

Placing the pipe

Corrugated metal pipe weighs much less than other commonly used drainage structures. This is due to the efficient strength of the metal, further improved with carefully designed and formed corrugations.

Even the heaviest sections of [REDACTED] Pipe can be handled with relatively light equipment compared with equipment required for much heavier reinforced concrete pipe.



A Felton band puller is available to help pull the band bars together.

Backfilling

All suitable structural backfill materials will perform well with [REDACTED] Corrugated Steel Pipe and Pipe-Arches. However, backfill should be free of large stones, frozen lumps and other debris.

Backfill materials should be placed in layers about six inches deep, deposited alternately on opposite sides of the pipe. Each layer should be compacted carefully, until reaching a height of at least three-fourths of the structure.

Installation procedures should be in accordance with project specifications. For construction loads, see Page 9.

Complete Information

For more information, see ASTM A 798, AASHTO Section 26, and the Installation Manual of the National Corrugated Steel Pipe Association.

Height-of-cover notes

Notes for Pages 7, 8, and 9

1. These tables are for lock-seam or welded-seam construction. They are not for riveted construction. Consult your [REDACTED] Sales Engineer for height-of-cover tables on riveted pipe.
2. The haunch areas of a pipe-arch are the most critical zone for backfilling. Extra care should be taken to provide good material and compaction to a point above the spring line.

3. E 60 minimum cover is measured from top of pipe to bottom of tie.
4. H 20 and H 25 minimum cover is measured from top of pipe to bottom of flexible pavement or top of rigid pavement.
5. The H 20 and H 25 pipe-arch tables are based on 2 tons per square foot corner bearing pressures.
6. The E 80 pipe-arch tables minimum and maximum covers are based on the corner bearing pressures

shown. These values may increase or decrease with changes in allowable corner bearing pressures.

7. 0.064" is 16 gage.
0.079" is 14 gage.
0.109" is 12 gage.
0.138" is 10 gage.
0.168" is 8 gage.

8. For construction loads, see Page 5.

24" x 20" = 9.30 / 4 (16 Gs.)

EARTH TECH		MURPHY	
Phone #	755-1963	Phone #	732-1933
Fax #	755-1967	Fax #	732-1935

CHAPTER 1

MATERIAL SPECIFICATIONS
FOR REINFORCING BARS (Cont.)

MECHANICAL REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS

Type of Steel and ASTM Designation	Bar Nos. Range	Grade ¹	Minimum Yield, psi	Minimum Tensile strength, psi	Minimum Percentage Elongation in 8 in.	Cold Bend test ² Pin Diameter (d = nominal diameter of specimen)
Billet-Steel A615	3-6	40	40,000	70,000	#3.....11 #4, #5, #6.....12	#3, #4, #5.....3½d #6.....5d
	3-11, 14, 18	60	60,000	90,000	#3, #4, #5, #6.....9 #7, #8.....8 #9, #10, #11, #14, #18.....7	#3, #4, #5.....3½d #6, #7, #8.....5d #9, #10, #11.....7d #14, #18 (90 deg).....5d
	11, 14, 18	75	75,000	100,000	#11, #14, #18.....6	#11.....7d #14, #18 (90 deg).....5d
Rail-Steel A615	3-11	50	50,000	80,000	#3, #7.....6 #4, #5, #6.....7 #8, #9, #10, #11.....5	For Grades 50 and 60: #3, #4, #5.....½d per S1 ⁴3½d #6, #7, and #8.....½d per S1 ⁴5d #9, #10.....½d per S1 ⁴7d #11 (90 deg).....½d per S1 ⁴½d
	3-11	60	60,000	90,000	#3, #4, #5, #6.....6 #7.....5 #8, #9, #10, #11.....4½	
Axle-Steel A617	3-11	40	40,000	70,000	#3, #7.....11 #4, #5, #6.....12 #8.....10 #9.....9 #10.....8 #11.....7	#3, #4, #5.....3½d #6 through #11.....5d
	3-11	60	60,000	90,000	#3, #4, #5, #6, #7.....8 #8, #9, #10, #11.....7	#3, #4, #5.....3½d #6, #7, #8.....5d #9, #10, #11.....7d
Low-Alloy Steel A706	3-11, 14, 18	60	60,000 ⁵	80,000 ⁵	#3, #4, #5, #6.....14 #7, #8, #9, #10, #11.....12 #14, #18.....10	#3, #4, #5.....½d #6, #7, #8.....½d #9, #10, #11.....½d #14, #18.....½d

¹ Minimum yield designation.

² Yield point or yield strength. See ASTM specifications.

³ Test bends 180° unless noted otherwise.

⁴ Under supplementary requirements S1 of ASTM A 615 only. ACI 318 requires rail-steel bars (ASTM A 615) to meet Supplementary Requirement S1.

⁵ Maximum yield strength 78,000 psi (ASTM A 706 only).

Tensile strength shall not be less than 1.25 times the actual yield strength (ASTM A 706 only).

DEFORMATION REQUIREMENTS FOR
STANDARD ASTM DEFORMED REINFORCING BARS

Size No.	Maximum Average Spacing	Minimum Average Height	Maximum ¹ Gap
3	0.262"	0.015"	0.143"
4	0.350"	0.020"	0.191"
5	0.437"	0.028"	0.239"
6	0.525"	0.038"	0.285"
7	0.612"	0.044"	0.334"
8	0.700"	0.050"	0.383"
9	0.790"	0.056"	0.431"
10	0.889"	0.064"	0.487"
11	0.987"	0.071"	0.540"
14	1.185"	0.085"	0.658"
18	1.58"	0.102"	0.864"



RENAE L. SHELL
Inside Sales

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1-800-543-4322
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STEEL MILL & WAREHOUSE
200 W. NORTH BEND ROAD
CINCINNATI, OH 45216

FROM : DISCOUNT DRAINAGE

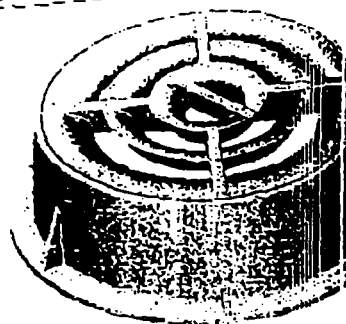
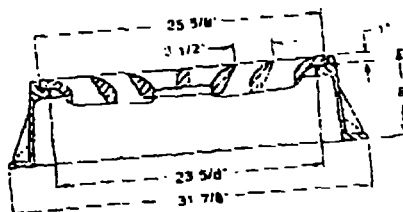
FAX NO. :

May. 21 2001 04:09PM F.

NOTE: When specifying or ordering grates-
Please refer to "CHOOSING THE PROPER INLET GRATE" on pages 108 and 109.

R-2548 Catch Basin Frame, Vane Grate

Heavy Duty

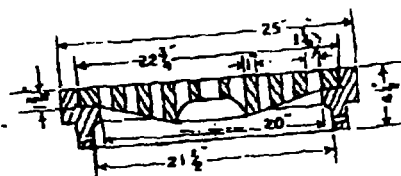


Uses R-1728 frame.

R-2549 Catch Basin Frame and Grate

Heavy Duty

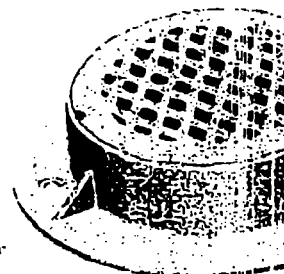
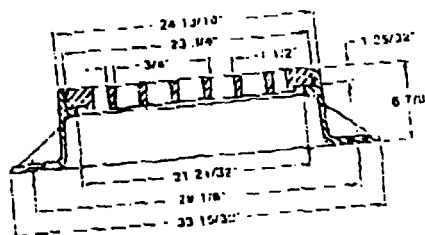
Note 4-5/8" holes in side wall for bolting to corrugated pipe. Furnished only when specified.
Fits inside 24" corrugated metal pipe.



Uses R-1545 frame.

R-2552 Catch Basin Frame, Grate

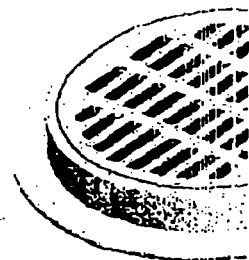
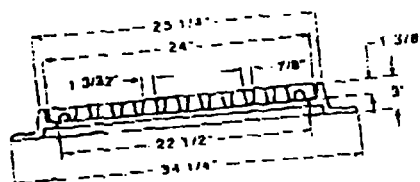
Heavy Duty



Uses R-1714 frame.

R-2553 Catch Basin Frame, Grate

Heavy Duty



Uses R-1545 frame.

LETTER OF SUBMITTAL

Submittal # 012

VIA ☐ REGULAR MAIL ☐ FEDERAL EXPRESS ☐ FAX ☐ E-MAIL

200 Vine Street
Wilder, KY 41076
Phone: (859) 442-2300
Fax (859) 442-2306

DATE: May 21, 2001	JOB/PROJECT: Skinner Landfill West Chester, OH
ATTENTION: Ron Roelker	
Specification Section No.:02270 - 2, Part 2 1.03 1&2	
Specification Section No.:02270 - 2 1.03 A-C	
SUBJECT: Silt Fence and Erosion Control	

WE ARE SENDING YOU:

- ☒ Attached ☐ Under separate cover via the following items:
- ☐ Copy of letter ☐ Change order ☐ Prints ☐ Specifications
- ☐ Flow sheets ☐ P & ID ☐ Samples
- ☐ Shop drawings ☐ Plans ☒ Other

Item Number	Number of Copies	Document Type	Description
1	2	Original	Silt Fence Specifications 2270-2-1.03 C
2	2	Original	Design Data for Silt Fence 2270-2-1.03 B
3	2	Original	Erosion Control Specifications 2270-2-1.03 A

THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
- ☐ For your use ☐ Approved as noted ☐ Resubmit copies for distribution
- ☒ As requested ☐ Returned for corrections ☐ Return corrected prints
- ☐ For review & comment ☐ Other: _____ ☐ Prints Returned After Loan To Us
- ☐ FOR BIDS DUE

REMARKS:

COPIES TO:

SENT BY/SIGNED: Rick Warwick

R. Warwick

Engineer's Approval:

RONALD F. ROELKER
5-22-01



Amoco Fabrics and Fibers Company

260 The Bluffs
Austell, GA 30168
PH: (770) 944-4569
FX: (770) 944-4384

April 17, 2000

Mr. Dennis Long
J. M. D.
FAX: 412-833-2338

Dear Sir:

We wish to advise that Amoco Style 2130 meets the following minimum roll averages:

Property	Test Method	Minimum Average Roll Value (English)	Minimum Average Roll Value (Metric)
Grab Tensile	ASTM-D-4632	124 lbs ✓	0.530 kN
Grab Elongation (max%)	ASTM-D-4632	20 %	20 %
Mullen Burst	ASTM-D-3786	300 psi ✓	2060 kPa
Puncture	ASTM-D-4839	65 lbs	0.285 kN
Tramuntana Tear	ASTM-D-4353	65 lbs	0.283 kN
UV Resistance	ASTM-D-4355	80 % at 500 hrs ✓	80 % at 500 hrs
ACS	ASTM-D-4751	30 slaps ✓	6.600 mm
Flow Rate	ASTM-D-4491	10 gal/min/hr ✓	409 L/min/hr

90
50-140

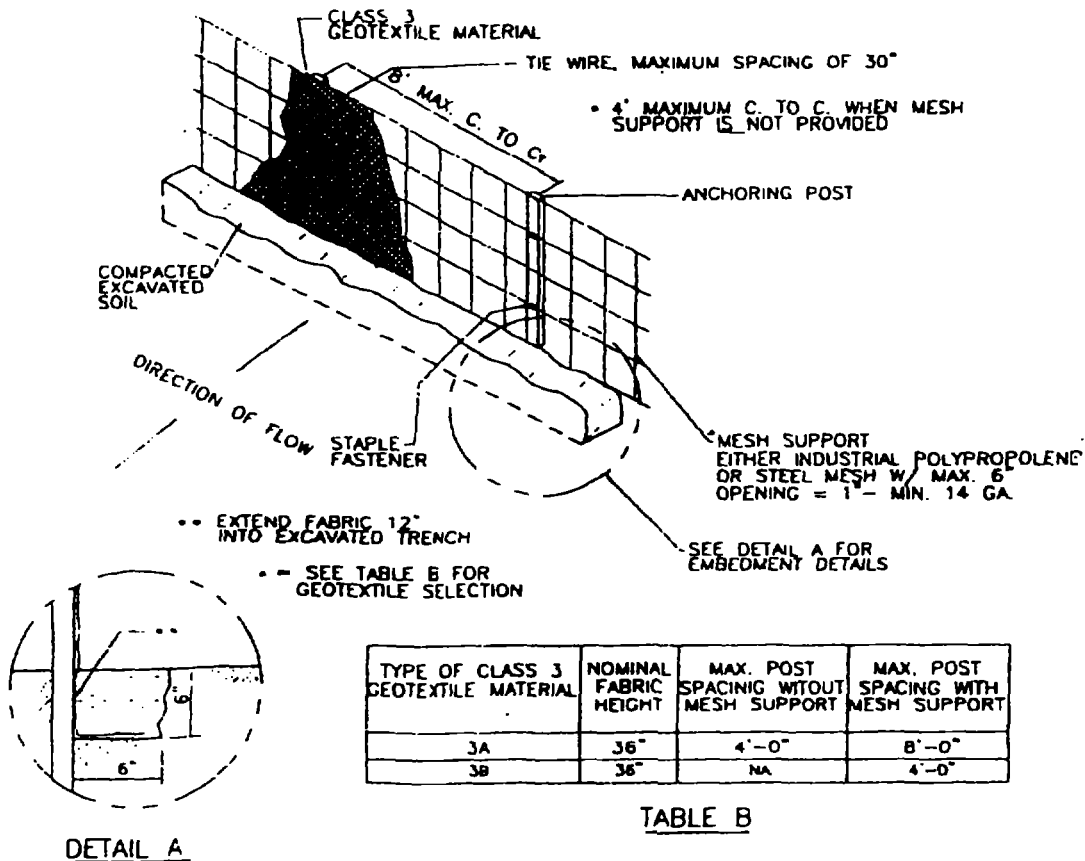
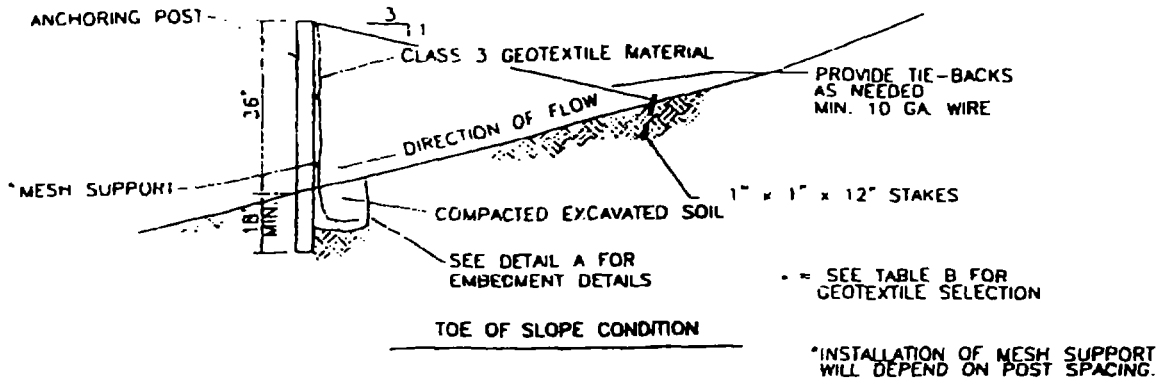
Amoco Fabrics and Fibers Company manufactures Style 2130 in the USA. The values listed are a result of testing conducted in on-site laboratories. A letter certifying the minimum average roll values will be issued from the manufacturing plant by the Quality Control Manager at the time the shipment is made. In accordance with our quality control procedures which are in compliance with ISO 9002 standards, this information will be supplied to Amoco Fabrics and Fibers Company's original customer of record.

Winfred B. Brown
Sales Engineer
Civil Engineering Fabrics

04/17/01jmd/enc.doc

Part of the BP Amoco Group

Silt fence
2270 - Port 2
2.01 B ✓



Silt fence
Positive
Detail ✓



Effective 10/28/96

MATERIAL SPECIFICATIONS**CATEGORY I**

S75 Erosion control blanket shall be a machine-produced mat of 100% agricultural straw.

The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a lightweight photodegradable polypropylene netting having an approximate 1/2 inch (1.3 cm) x 1/2 inch (1.3 cm) mesh and be sewn together on 1.5 inch (3.8 cm) centers with degradable thread.

Straw erosion control blanket shall be S75 as manufactured by North American Green, or equivalent. The S75 erosion control blanket shall have the following properties:

Material Content

Straw	100% (.50 lb/sq yd) (.27 kg/m sq)
Netting	One side only, lightweight photodegradable (1.64 lb/1,000 sq ft approx. wt.)
Thread	Degradable

Physical Specifications (Roll)

Width	6.5 feet (2m)
Length	83.5 feet (25.4m)
Weight	30 lbs \pm 10% (13.6 kg)
Area	60 sq yds (50m sq)
Stitch Spacing	1.5 inch (3.8 cm), 50 per 6.5 feet (2 m) roll width

2270
print 2
2.01
A

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16:30

JMD COMPANY + COLUMBUS + 16064422306

MD, GE

04

TEMPORARY PHOTODEGRADABLE EROSION CONTROL

S75

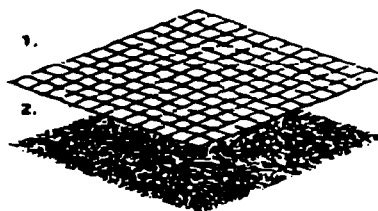
S75 is constructed of 100% agricultural straw and a lightweight, photodegradable, top net. The functional longevity of the blanket is approximately 10 months. The components are sewn together on 1.5 inch (3.8 cm) centers with degradable thread to ensure blanket durability and performance. The S75 provides effective erosion control and mulching on 3:1 slopes ($\leq 33\%$ slope or ≤ 19 degree slope) and low-flow swales. May be used on steeper slopes. Consult North American Green software for specific recommendations.



DS75

DS75 features a 100% agricultural straw matrix sewn into a lightweight, accelerated photodegradable, top net. The accelerated photodegradable netting starts degradation in 30 to 45 days (with an approximate functional longevity of 60 days). This blanket provides the same protection as the S75; however, it should be used where lawn management will occur soon after vegetation has established.

Straw



Material Composition

1. Net
Lightweight photodegradable polypropylene 1.64 lbs/1000 (0.8 kg/100 sq m) approx w.t.
 2. Straw Fiber
0.5 lbs/sq yd (0.27 kg/sq m)
- Thread
Degradable

Roll Specifications

Width	6.5 feet (2m)
Length	83.5 feet (25.4m)
Weight	30 lbs \pm 10% (13.6 kg)
Area	60 sq yds (5071 sq)



XCEL Excelsior

Erosion Control Blankets

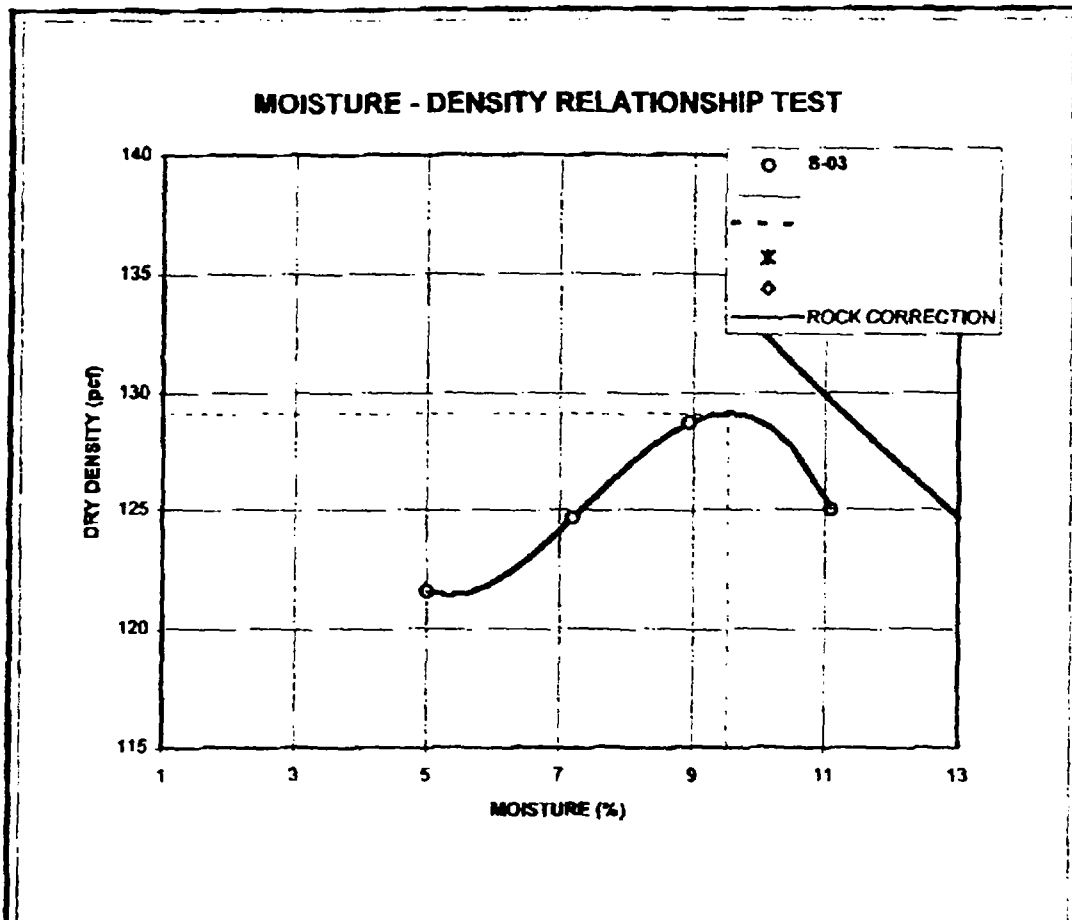
4 foot and 8 foot Lengths



Approved
Erosion
to NAG

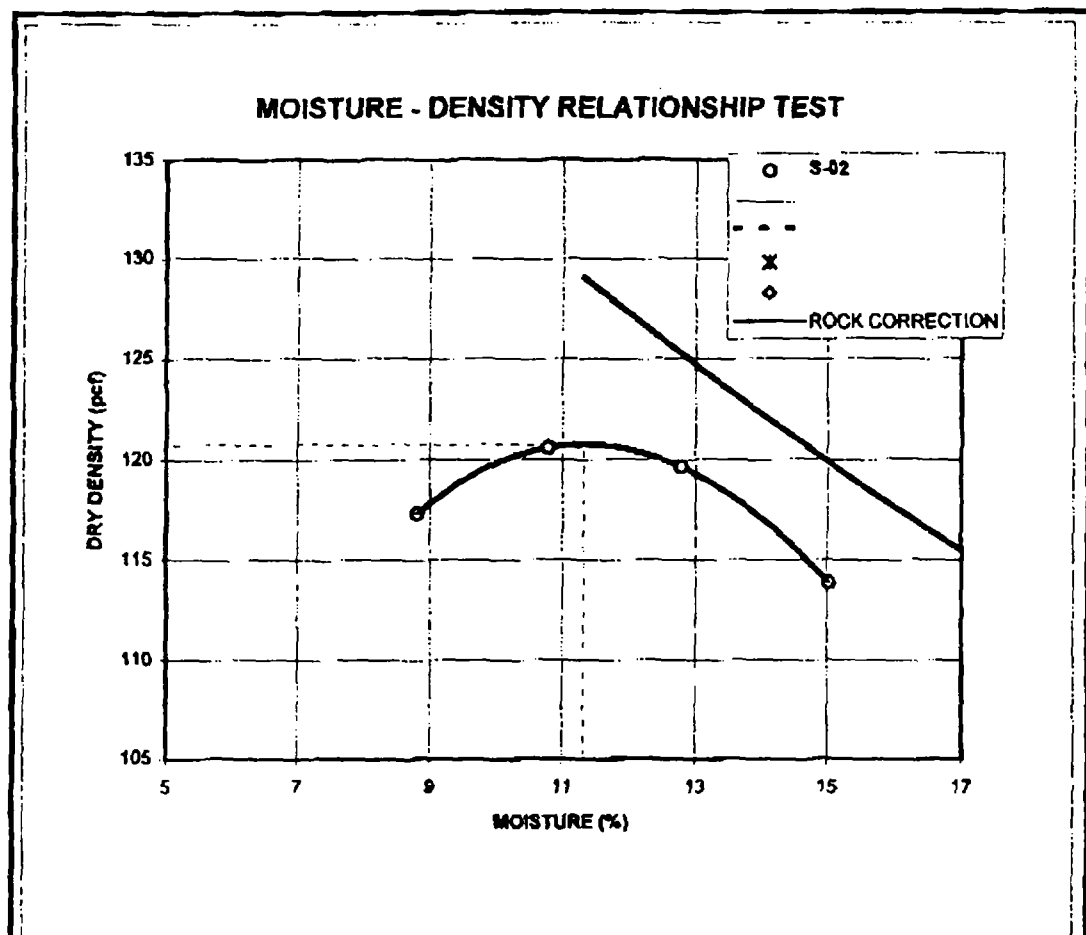
SPEC DATA	REGULAR R1		SUPERIOR S2		SUPER DUTY SD3	PERM 100	P13	F
	4 foot	8 foot	4 foot	8 foot	8 foot	8 foot		
Width ± 1"	4'	8'	4'	8'	8'	8'	4'	
	(121.92 cm)	(243.84 cm)	(121.92 cm)	(243.84 cm)	(243.84 cm)	(243.84 cm)	(121.92 cm)	
Length	180'	90'	180'	90'	50'	50'	75'	
	(5486.4 cm)	(2743.2 cm)	(5486.4 cm)	(2743.2 cm)	(1524 cm)	(1524 cm)	(1905 cm)	
Sq Yds	80 sq.yds	80 sq.yds	80 sq.yds	80 sq.yds	44 sq.yds	44 sq.yds	33.3 sq.yds	
	(66.89 sq.m)	(66.89 sq.m)	(66.89 sq.m)	(66.89 sq.m)	(36.79 sq.m)	(36.79 sq.m)	(27.7 sq.m)	
Wgt Per Roll ± 10%	78 lbs	78 lbs	80 lbs	80 lbs	72 lbs	94 lbs	78 lbs	
	(35.3808 kg)	(35.3808 kg)	(36.2880 kg)	(36.2880 kg)	(32.616 kg)	(42.64 kg)	(35.3808 kg)	
Wgt Per Sq Yd ± 10%	.98 lbs	.98 lbs	1.0 lbs	1.0 lbs	1.62 lbs	2.13 lbs	2.34 lbs	
	(.4445 kg)	(.4445 kg)	(.4536 kg)	(.4536 kg)	(.7348 kg)	(.966 kg)	(1.06 kg)	
Flow Velocities (Ft. per sec.)	5-1/2'	5-1/2'	7'	7'	12'	20' +	20' +	
Flow Depth	4"	4"	6"	6"	6" +	6" +	6" +	
Channel Grades	4%	4%	6%	6%	6% +	6% +	6%	
Slope Angles	2:1-	2:1-	2:1	2:1	2:1+	2:1+	2:1-	
Netting Application	Top	Top	Top & Bottom	Top & Bottom	Top & Bottom	Top & Bottom	Enclosed Bottom	yes
Netting Color	Green	Green	Green	Green	Black	Black	Black	
Netting Size	1" x 1"	1" x 1"	1" x 1"	1" x 1"	3/4" x 3/4"	3/8" x 3/8"	3/8" x 3/8"	

	Grid Tens Size (In.)	Tens Staples (%)	Median Staple (mm)	Puncture (In.)	Tensile Tear (In.)	UV Resistance (%)	AGE (US State)	Permeability (Inch - 1)		
PERM 200F	1200 lbs. per 48" width	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
PERM 100	1200 lbs. per 48" width	>50	155	55	50	>80	70-35	2.9	2	



Test Specification:		ASTM	D698-91 Standard.	Method B	ZAV @ Gs 2.7			
Classification			Natural	Specific				
USCS	USDA	AASHTO	Moisture (%)	Gravity	LL	PI	% > 3/8 in	% < #200
Test Result				S-03				
Maximum Dry Density (pcf)				129.1				
Optimum Moisture (%)				9.5				
Corrected Maximum Dry Density								
Corrected Optimum Moisture (%)								
Material Description					Remarks			
BROWN SANDY CLAY W/ SMALL GRAVEL								
Project Name Skinner Landfill					Prep By DR Tested By DR			
Client ID Earth Tech		W.O.# 15396.069		MOISTURE - DENSITY RELATIONSHIP TEST H.C. NUTTING COMPANY				
Sample Number S-03								
Sample Location SOUTH BORROW		6'						
Date 4 May-01		Lab No. 3449						

5/4/01



Test Specification: ASTM D698-91 Standard, Method B				ZAV @ Gs 2.7			
Classification			Natural	Specific			
USCS	USDA	AASHTO	Moisture (%)	Gravity	LL	PI	% < 3/8 in #200
Test Result				S-02			
Maximum Dry Density (pcf)				120.7			
Optimum Moisture (%)				11.3			
Corrected Maximum Dry Density							
Corrected Optimum Moisture (%)							
Material Description					Remarks		
BROWN SANDY CLAY							
Project Name Skinner Landfill				Prep By DR Tested By DR			
Client ID Earth Tech		W.O.# 15396.069		MOISTURE - DENSITY RELATIONSHIP TEST H.C. NUTTING COMPANY			
Sample Number S-02							
Sample Location TOE OF SLOPE		4'					
Date 4-May-01		Lab No. 3448					